

THE RELATIONSHIP BETWEEN WORK-RELATED  
LIFE CRISIS EVENTS AND MENTAL HEALTH

By

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To  
Ann

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# TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGMENTS . . . . .	iv
LIST OF TABLES . . . . .	vii
LIST OF FIGURES . . . . .	ix
ABSTRACT . . . . .	x
CHAPTER	
1 INTRODUCTION . . . . .	1
2 REVIEW OF LITERATURE AND THE THEORETICAL FRAMEWORK . . . . .	6
Toward a Working Definition of Mental Disorders . . . . .	6
Stress Literature . . . . .	9
Stressful Life Events . . . . .	14
LCEs, Coping Variables and Impairment . . . . .	20
Work and Mental Health . . . . .	29
3 METHODOLOGY . . . . .	48
Background to Study . . . . .	48
Major Social-Psychiatric Variables . . . . .	50
Measurement of Life Crisis Events . . . . .	54
Demographic and Resource Control Variables . . . . .	57
Plan of Analysis: Foundations . . . . .	57
Plan of Analysis: Formal Hypotheses . . . . .	61
Other Measures of Work Behavior . . . . .	65

# TABLE OF CONTENTS (continued)

CHAPTER		<u>Page</u>
4	FINDINGS . . . . .	67
	Introduction . . . . .	67
	Employed Sample Characteristics . . .	67
	Description of WRLCE . . . . .	77
	Regression Analysis of HOS and PDS Change Scores . . . . .	80
5	SUMMARY AND CONCLUSIONS . . . . .	107
	Introduction . . . . .	107
	Summary of Findings of Hypotheses . .	107
	Implications for Future Research . .	109
	BIBLIOGRAPHY . . . . .	113
	BIOGRAPHICAL SKETCH . . . . .	125

# LIST OF TABLES

<u>Table</u>		<u>Page</u>
4.1	Demographic Characteristics of The Original and Follow-up Worker Samples . . .	69
4.2	Full Sample HOS Scale Scores by Sex, Age, Race, Income . . . . .	70
4.3	Employed Sample HOS Scale Scores by Key Social and Demographic Variables . . . . .	72
4.4	Full Sample PDS Scale Scores by Sex, Age, Race, Income . . . . .	75
4.5	Employed Sample PDS Scale Scores by Key Social and Demographic Variables . . . . .	76
4.6	Paykel's Work-Related Items, Their Weights and Frequency of Occurrence . . . . .	78
4.7	Transition of Respondents Between Case Categories Controlling for WRLCE . . . . .	79
4.8	Regression Analysis of T2 HOS Scores as Change from T1 HOS Scores, Using Major WRLCE and Sociodemographic Controls as Predictors . . . . .	82
4.9	Regression Analysis of T2 PDS Scores as Change from T1 PDS Scores, Using Major WRLCE and Sociodemographic Controls as Predictors . . . . .	85
4.10	Regression Analysis of HOS and Sociodemographic Predictors of WRLCE Scores . . . . .	87
4.11	Regression Analysis of PDS and Sociodemographic Predictors of WRLCE Scores . . . . .	88

# LIST OF TABLES (continued)

<u>Table</u>		<u>Page</u>
4.12	Regression Analysis of Time 2 HOS, Using Income, Occupation and WRLCE as Predictors . . . . .	91
4.13	Regression Analysis of Time 2 PDS, Using Income, Occupation and WRLCE as Predictors . . . . .	93
4.14	Regression Analysis of Time 2 HOS, Using Social Support and WRLCE as Predictors . . .	95
4.15	Regression Analysis of Time 2 PDS, Using Social Support and WRLCE as Predictors . . .	97
4.16	Regression Analysis of Time 2 HOS, Using Combined Social Resource Variables and WRLCE as Predictors . . . . .	98
4.17	Regression Analysis of Time 2 PDS, Using Combined Social Resource Variables and WRLCE as Predictors . . . . .	100
4.18	Cross-Sectional Regression Analysis of Length of Time in Present Place of Employment, Using PDS and Key Socio- demographic and Social Resource Variables as Predictors . . . . .	103
4.19	Cross-Sectional Regression Analysis of Times Unemployed Using Key Sociodemographic and Social Resource Variables as Predictors . . . . .	104



# LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
2.1	Early Social Stress Model by Dohrenwend . .	11
2.2	Life Event: Sources, Adaptations and Outcomes . . . . .	12
3.1	Different Possible Outcomes of HOS and PDS Scores Over Time Controlling for WRLCE . . . . .	62

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THE RELATIONSHIP BETWEEN WORK-RELATED  
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This dissertation analyzes the influences of Time 1 psychiatric symptom and dysfunction scale scores on intervening Work-Related Life Crisis Events (WRLCE) and Time 2 symptom and dysfunction scores. The impact of WRLCE on Time 2 symptoms and dysfunctions is also examined.

Psychiatric symptomatology is assessed by the Leighton Health Opinion Survey Scale (HOS) which was revised from the original work of Macmillan, and the Psychosocial Dysfunction Scale (PDS) developed by Warheit. The major work behavior variable, WRLCE, is derived from a weighted life crisis event measure developed by Paykel which focuses on average degree of "upset" expected for various life experiences. Standard demographic and coping-resource controls are employed throughout the analysis.

A review of literature concerned with social stress and the relationship between mental health and work behavior concludes with the following three general hypotheses:

- Hypothesis 1: The level of prior work events (WRLCE) is directly related to subsequent psychiatric symptom (HOS) and dysfunction (PDS) score levels.
- Hypothesis 2: Those with high prior symptom and dysfunction scores will have a larger number of subsequent WRLCE than those with low prior scores.
- Hypothesis 3: The occurrence of WRLCE will produce a greater increase in symptom and dysfunction scores for those with few resources than for those with many resources.

These hypotheses are tested in a longitudinal design of full and part-time workers (N=267) taken from an original epidemiological survey (N=1645) in 1970 and its follow-up in 1973. Multiple regression tests provide the primary focus of data analysis.

The main findings of this study are as follows:

(1) Symptoms and dysfunctions maintain high stability over time. By comparison, there is a low association between antecedent WRLCE and Time 2 psychiatric scale scores, with less than 3% of the variance explained. This provides only tentative support for Hypothesis 1.

(2) Time 1 symptoms and dysfunctions have a strong and highly significant impact on WRLCE. This strongly supports Hypothesis 2.

(3) Time 1 dysfunctions better predict WRLCE than do Time 1 symptoms, corroborating the efficacy of PDS as a measure of work dysfunction.

(4) The social resource variables, occupational level and income, are highly significant predictors of time 2 symptoms and dysfunctions. This supports Hypothesis 3.

(5) The weak association of social support with Time 2 symptoms and dysfunctions, when controlling for key variables, qualifies and limits Hypothesis 3.

Thus, this study confirms the influence of Time 1 psychiatric symptom and dysfunction scale scores on intervening WRLCE and Time 2 symptom and dysfunction scores. While the impact of WRLCE on Time 2 symptoms and dysfunctions is given only limited support, the mitigating effects of occupational level and income variables on Time 2 scale scores are supported.

Finally, several ancillary measures of work-related behavior are introduced at the end of this dissertation. They are exploratory and useful primarily in raising issues for future research.

## CHAPTER 1

### INTRODUCTION

A number of etiologic models have been developed to explain the origins of mental illness. Among the primary ones discussed in the literature are biogenetic (Slater and Cowie, 1971; Myerson, 1976), biochemical (Perris, 1966; Segal et al., 1976), psychosocial stress (Cannon, 1929; Selye, 1955, 1956), social labeling (Scheff, 1966; Lemert, 1967), and learning models (Mowrer, 1960; Estes, 1970). Falling within a social framework perspective are the stress, labeling and learning models.

The present research focuses primarily on the stress model. This model is most often employed to explain the impact of events arising in the individual's environment on physical and/or mental health. Consonant with this, there is a large body of research supporting the view that some mental disorders are the outcomes of events which arise in the social environment (e.g., Holmes and Rahe, 1967; Paykel, 1971, 1972). In contrast, a number of studies (Murphy, 1976; Holzer, 1977; Warheit, 1979; Myers et al., 1972) report a great amount of stability of symptomatology cross-culturally despite events.

This finding suggests that one's mental health influences the occurrence of life events. It is therefore necessary to examine the degree to which symptomatology may precipitate life crisis events if one is to understand the relationship between life events, stress and mental disorders.

The stress literature suggests that life crisis events (LCEs) produce increases in psychiatric symptom and dysfunction levels. It is also consistent with this literature that symptoms produce life events and, specifically, work problems. The research reported in this dissertation is designed to examine the relationships between work-related life crisis events (WRLCEs) and measures of psychiatric symptomatology and psychosocial dysfunction. Related studies have shown that coping resources such as income and family support networks help to mitigate the deleterious relationship between events and symptoms (Cassel, 1976; Cobb, 1976; Dean and Lin, 1977; Rabkin and Streuning, 1976).

Therefore, the present research proposes to answer the following questions:

(1) To what extent do work-related events produce changes in psychiatric symptoms and/or psychosocial dysfunction?

(2) To what extent do psychiatric symptoms and psychosocial dysfunction produce work-related events?

(3) To what extent are work-related events inter-related with prior psychiatric symptoms and psychosocial dysfunction?

(4) And, to what extent do coping resources mitigate the impact of work events?

The first two questions have often been treated as alternatives in the literature. But they are not necessarily exclusive; both may occur simultaneously.

Regarding the fourth question, on-going social and emotional coping mechanisms have been demonstrated to influence the relationship between stressors and mental health. For example, an unskilled worker with relatively few economic and familial resources to mediate the effects of events such as illness or unemployment is more vulnerable to their deleterious consequences. Because of such considerations, this study will investigate the impact of work crisis events on demographic groups which appear to have different levels of coping-adaptation resources.

A longitudinal design was used for this research based on an epidemiological survey and a follow-up study. This has the advantage of providing a measure of psychiatric symptomatology which is prior to and therefore independent of the current work situation. More specifically, this dissertation analyzes the influences of Time 1 ( $T_1$ ) psychiatric symptom and dysfunction scores on

intervening life events and Time 2 ( $T_2$ ) symptom and dysfunction scores. Psychiatric symptomatology is assessed by the Leighton Health Opinion Survey Scale (HOS) which was revised from the original work of Macmillan (1957), and the Psychosocial Dysfunction (PDS) measure developed by Warheit et al. (1975a). The major work behavior variable, Work-Related Life Crisis Events (WRLCE), is derived from a weighted life crisis event measure developed by Paykel (1971) which focuses on average degree of "upset" expected for various life experiences. Standard demographic and coping-resource controls are employed throughout the analysis. Hypotheses testing the relationships between WRLCEs, resources, stress and psychiatric symptoms and dysfunctions are introduced at the end of Chapter 2 and discussed in the Chapter 3 plan of analysis.

Chapter 2 reviews the literature relating work to psychiatric symptomatology, beginning with an overview of the different theoretical approaches used to explain the etiology of mental disorders. Then, the stress model is presented and life crisis event literature reviewed. The latter includes an exposition of the effect of resource variables like social support networks and Socioeconomic Status (SES), a composite measure of income, occupation and education (See Nam and Powers, 1968). The core of the chapter is comprised of a review of literature reporting



the relationship between work and mental symptomatology. The chapter ends with a brief delineation of the general hypotheses guiding this research.

Chapter 3 describes the methodology of this research. First, the background of the Florida Health Study and its three-year follow-up is outlined. The major variables included in the present study are then described in detail. These include the general psychoneuroticism scale (HOS), psychosocial dysfunction scale (PDS), and work-related life crisis event scale (WRLCE). This is followed by a description of key demographic and resource controls. In the plan of analysis, the hypotheses are formally introduced and the application of appropriate statistical tests is discussed. The chapter concludes with the presentation of ancillary measures of work-related behavior and techniques for their analysis.

Chapter 4 begins with a description of the distribution of main variables. A detailed analysis of each hypothesis provides the core of this chapter. Alternative analytic approaches for testing key questions of this research are employed. Statistical tests appropriate for crosstabular data presentation and multiple regression analysis define the presentation of findings. Both longitudinal and crosssectional data are examined.

In Chapter 5 a summary of the main findings is given and examined for theoretical relevance. This dissertation concludes with suggestions for future research.

## CHAPTER 2

### REVIEW OF LITERATURE AND THEORETICAL FRAMEWORK

The purposes of this chapter include the presentation of an overview of the different theoretical approaches used to explain the etiology of mental disorders. Then the stress models are outlined and the life crisis event literature is reviewed. The latter includes a discussion of the effect of "resource" variables such as socioeconomic status (SES) and social support networks. The remainder of this chapter consists of a review of literature which describes the relationships between work and mental symptomatology.

#### Toward a Working Definition of Mental Disorders

There are many divergent theoretical conceptions of mental health and mental disorders. Researchers with a biogenetic perspective (Slater and Cowie, 1971; Myerson, 1976), for example, maintain that mental health/illness is a product of biological functions and dysfunctions which are genetically transmitted. Other researchers, however, claim that biochemistry, influenced by genes, cognition, or environmental influences, is the proper etiologic focus of mental illness (Perris, 1966; Segal

et al., 1976). The recent discovery that the body produces endogeneous opiates (Hughes et al., 1975) has received much attention in the popular literature and encouraged hope that a new generation of highly effective, safe psychotropic drugs is now on the horizon. Simultaneously, this finding adds credence to the arguments posited by psychopharmacologists.

Social models of etiology include labeling, learning, and psychosocial stress models. Labeling theory (Scheff, 1966; Lemert, 1967) emphasizes the social interactional processes whereby individuals are labeled mentally ill by others. Such labeled individuals are described as commonly internalizing and then acting out their socially defined roles. Learning theory (Mowrer, 1960; Estes, 1970), by contrast, examines the socioenvironmental processes which are postulated to precipitate mental disorders. Psychoanalytic and other developmental perspectives which emphasize the social genesis of neurotic and psychotic patterns of behavior exemplify this approach (Freud, 1949; Adler, 1929; Jung, 1966). Finally, as was stated in the Introduction, the psychosocial stress model (Cannon, 1929; Selye, 1955, 1956) is most often employed to explain the impact of events arising in the individual's environment on physical and/or mental health. This model, which is the framework for the present research, will be more fully discussed in the following section.

The stress literature is for the most part characterized by the consideration of the negative dimensions of mental health (although this is less the case for work-related research). This is because the thrust of social scientific research is generally towards amelioration of "problem areas" of human existence rather than definition of what is "normal" or "healthy." Nonetheless, there have been some notable attempts to define the positive dimensions of mental health. Jahoda (1958), for example, has developed a set of criteria for positive mental health based on such things as positive self concept and self-actualization. Similarly, Vaillant (1977) in Adaptation to Life examines those features of positive adaptation which give some individuals a decisive edge over others in dealing with life's inevitable crises. For purposes of this research, however, the negative dimensions of mental health provide the primary focus. More specifically, mental health/illness is defined operationally by scores on two different psychiatric scales: Leighton Health Opinion Survey (HOS) and the Psychosocial Dysfunction Scale (PDS). This approach represents a statistical normative definition of mental health. While the definition of mental health/illness used in this research has definite theoretical limitations, it is a useful one in that it avoids the issues of diagnosis and etiology which cannot be resolved at present given the current state of the social

and medical sciences. The statistical-normative approach, as the name suggests, focuses on the distribution of symptoms and dysfunctions among various social and demographic groups.

### Stress Literature

The earliest pioneers in the field of stress research (e.g., Cannon, 1929) researched the somatic aspects of emotion. Selye (1955, 1956) both coined the word "stress" as it relates to health and illness and did much to make it a popular and respected topic of research in the scientific community.

Selye's single most important theoretical contribution probably has been the General Adaptation Syndrome (GAS) (Selye, 1956). This paradigm proposes that the initial response to any kind of stressor, defined by Selye as anything that produces stress, is alarm. The body then quickly mobilizes its defenses (whether the threat is real or imagined makes no difference) and if the threat recedes, stability is quickly reestablished. If, however, the pressure continues for an extended period or is of overwhelming intensity at any given point in time, then the defense mechanisms of the body are overcome and physical deterioration results. It is of particular interest for purposes of the present research that the GAS syndrome concept can also be used to define the process whereby

stress precipitates behavioral disorders or psychiatric symptomatology.

Since the development of GAS, B.P. Dohrenwend (1961) and others have further developed this model to include coping and adaptation variables which determine the degree of resistance one can muster against any stressor or combination of stressors. Figure 2.1 (Dohrenwend, 1961) is a simple representation of such a paradigm. But Warheit (1979) has described this paradigm as a closed model with inherent theoretical and analytical weaknesses. He suggests the following model represented in Figure 2.2 as an alternative. The advantages of the second model include the fact that it does not assume unidirectional causality, as does the first model, and, further, it allows for the real life complexity of reciprocal interaction between individual, cultural, and socioenvironmental variables. Over time these variables are considered at the levels of events, adaptive-nonadaptive screens (coping variables), and stress outcomes. Furthermore, the author points out that "resources" include such diverse things as individual genetic makeup, social support networks, institutional helping resources, and culturally based beliefs, values and symbols.

Hence, an individual lacking adequate resources who experiences intense life crisis events or debilitating on-going stressors is likely to respond maladaptively.

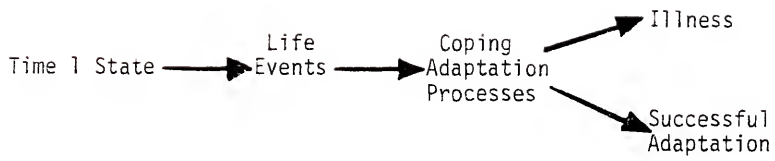


Figure 2.1 Early Social Stress Model by Dohrenwend (1961)

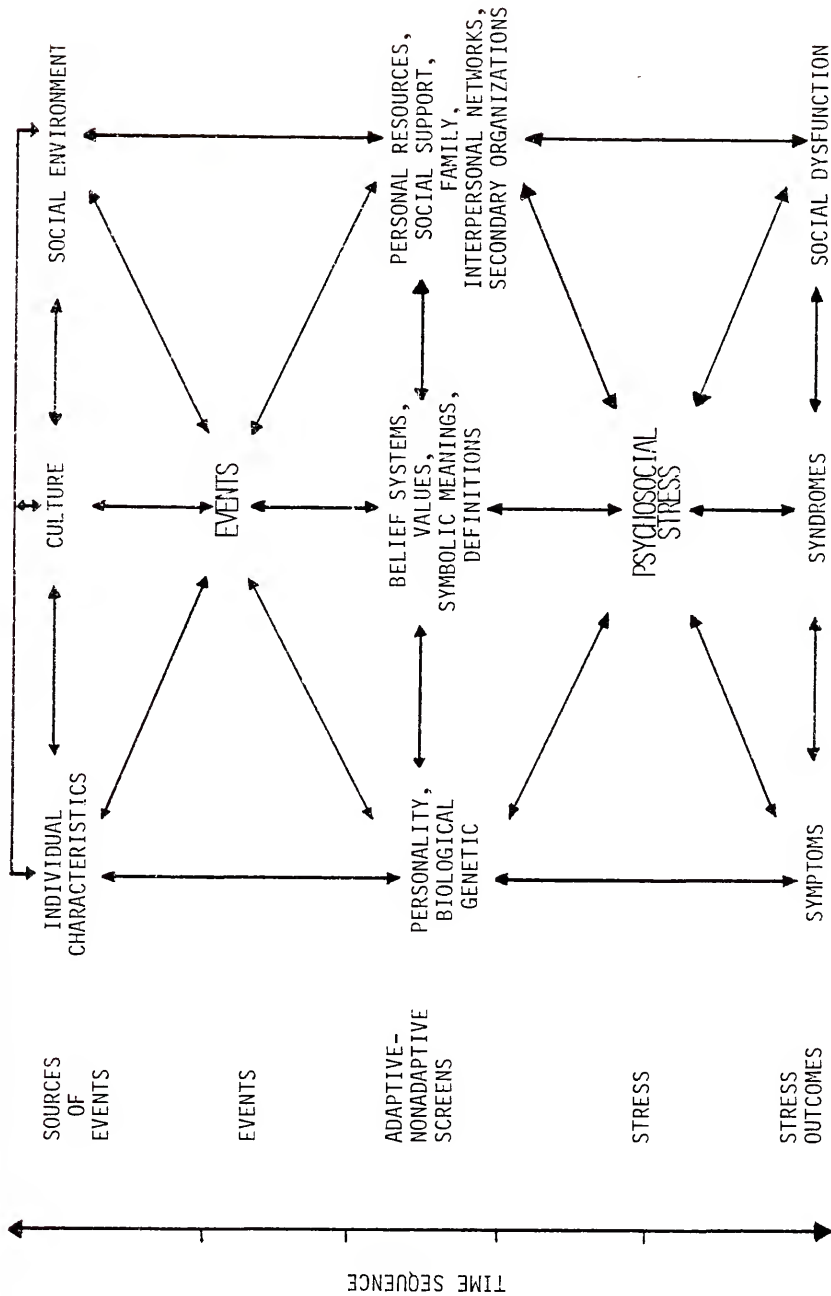


Figure 2.2 Life Events: Sources, Adaptations, and Outcomes.



Once a maladaptive response has been made, a stubborn pattern of physical or mental symptomatology leading to even greater deterioration will generally result if the stressors are not removed or ameliorated. It should be noted at this point that the present study is based on longitudinal data and therefore examines such long-term patterns of response to stress. In contrast, most stress-related research is cross-sectional and tends to obscure stress-related developmental factors.

McGrath (1970) viewed stress as resulting from either undercapability or overcapability in the face of demands. This is consonant with Selye's notion that some level of stress is necessary for biological survival and that stress can be either constructive or destructive depending upon one's circumstances and corresponding abilities.

Mechanic (1967, 1970) takes a divergent view in criticizing the "passive" stress model which he believes characterizes most of the literature. He proposes that greater attention be given to successful techniques for mobilization of effort against various stressors. He underscores the importance of "locating those aspects of approaches and behavioral repertoires that lead to crises and those that make (any) situation only an occasion for further progress and mastery" (Mechanic, 1970:122). While Mechanic's perspective has potential in sharpening or augmenting clinical approaches which help individuals to

deal with stress, it is for the most part a digression from the mainstream of research which deals with the continuity of stress reaction patterns over time.

McQuade (1972) hypothesized that the inability to cope with stress is the result of genetic and early socio-environmental factors that diminish the capacity to adapt to stressful events. In a similar manner, Hinkle and Wolff (1958) note that "over time a small proportion of the subjects have a majority of the illnesses, even though they have not had a greater number of objectively determined (stressful) experiences . . . They have, however, perceived their lives as more demanding, deprived, conflict ridden, and threatening than their peers" (Hinkle and Wolff, 1958). Furthermore, Hinkle and Wolff question the utility of the stress concept as applied to single event or "specificity" explanations of physical and mental breakdown for two reasons: the lack of uniform meaning and impact of crisis events for different individuals, and the almost invariably cumulative nature of stress events leading to illness over time.

Similarly, no attempt is made in this research to link any specific stressor with specific symptomatology.

### Stressful Life Events

Life events research has its roots in Meyer's (1951) life chart, a medical biographical device demonstrating

the relationship of biographical, psychological and sociological phenomena to health in man. As early as 1949 the life chart was employed in studying the nature and number of life events of 5,000 patients in Harold Wolff's laboratory at Cornell University. Within the following decades, Hinkle (1958, 1974) was pioneering in longitudinal life crisis event (LCE) studies. Holmes and Rahe (1967), in turn, were the first to quantify events and create LCE scales. The degree of change in one's physical or mental health was their sole criterion for determining the impact of life crisis events and they made no distinction between types of events. Most of the recent work in this area does make such distinctions, however. Holzer (1977) in his summary of selected classifications of life events appearing in the literature notes the following dimensions of research: desirable vs. undesirable events, objective vs. subjective occurrence, gain vs. loss, entrances vs. exits, and degree of upset.

According to Dohrenwend et al. (1978:207) the common denominator of the many definitions of LCEs can be stated as "objective occurrences of sufficient magnitude to bring about change in the usual activities of those who experience them." For purposes of the present research, an LCE is defined as a life experience (such as being fired from one's job) that is focused in time and that involves some kind of change in rôle or status potentially disruptive for the individual (Paykel et al., 1971; Paykel and Uhlenhuth, 1972).

Most all LCEs examined in the literature have a direct or indirect social origin. It is less clear, however, when the impact of a life event is felt. In the case of being laid-off from a job, does the event "occur" for the individual at the time the layoff is announced, on the day work ends, or at some point afterwards? (Cobb et al., 1966.) In addition, by what mechanisms does the event affect psychological symptoms? And why should some individuals tend to experience an increase in psychiatric symptomatology while others somatize stressful experiences? Another salient issue involves the related topic of chronic stress situations. For example, one might live with the threat of losing his job for many years and never be fired. Or an individual might live with all the pressure and disadvantage of being poor throughout life without ever experiencing the crisis of bankruptcy. The more carefully planned future research in this area should take such issues into account.

In one of the few longitudinal studies of LCEs done thus far Myers et al. (1972) collected interview data from respondents on events and psychiatric symptoms at two points, spaced two years apart. The findings showed that an increase in LCEs over time was related to a worsening of psychiatric symptoms. Still, it was not possible to conclusively determine from the data whether a change in events preceded a change in symptoms or whether changes

in symptoms more commonly preceded a change in events. Another study suggesting that LCEs influence symptoms is that of Rahe et al. (1970) which employed a prospective design sampling of U.S. servicemen aboard ship who were surveyed before they began a cruise. Events occurring in a six-month period before the start of the cruise were associated with a higher incidence of illness while aboard ship, although the illnesses reported tended to be minor physical disorders.

Until very recently, studies in the area of LCEs seldom addressed the issue of whether high symptomatology might precipitate events. In the past several years, however, there has been an accumulation of literature discounting or qualifying the impact of LCEs on mental health. Dressler et al. (1976) make two primary points in a study of the effects of LCEs on mental patients. First, there is a wide variation in individual response to LCEs which is obscured in most studies. Rabkin and Streuning (1976) concur on this point in their study. Also related to this finding are those of Paykel et al. (1971) and Hurst et al. (1978) which indicate that ratings (weights) assigned to LCEs differ between subjects who have experienced given events and those who have not. Second, Dressler et al. (1976) conclude that the incidence of LCEs precipitated by psychological factors is also commonly ignored or underestimated in the literature.

Their study revealed that:

(the patients) had accumulated a series of unresolved life stress events which occurred with high frequency, prolonged duration, and high emotional intensity resulting in an inner sense of emotional fragility... the precipitating event constituted a 'last straw' (which) assumed personal importance because of its symbolic meaning to the person, often reflecting an important underlying life theme with roots in early life experiences such as a sense of being abandoned, etc. (Furthermore), it was discovered that life events are often caused by people rather than just happening to them... particularly among those with a history of psychological fragility or psychopathology. (Dressler et al., 1976:557)

In their review of LCE literature, Rabkin and Streuning (1976) find substantial support for the conclusions in Dressler et al. (1976). In addition, they point to certain methodological weaknesses commonly found in LCE studies which considerably qualify the reported association between events and symptomatology. For example, the large sample size typically found in LCE research results in even very small correlations passing the test of statistical significance. Also, correlation coefficients, when reported, are typically below .30, indicating that life events may account for only about 9% of the explained variance in symptomatology.

Cadoret et al. (1972) and Hudgens (1974) in their studies of LCEs and psychiatric depression report that while a clustering of life changes often precipitates

hospitalization, symptoms are relatively stable over time. They speculate that it may be that life changes lead people to seek help for long-standing psychiatric problems. Tessler et al. (1976) in a study of out-patient medical facilities also found that stress tends to increase utilization of a medical facility rather than to increase symptoms.

Hence, in attempting to understand the impact of LCEs a number of questions should be considered. What sort of crisis event has taken place and what symbolic meaning does it hold for the individual involved? Do predisposing psychological factors account for the precipitating of certain events like accidents and acute illnesses rather than the reverse? Also, what percentage of the variance of psychiatric symptomatology do events actually account for? And most importantly, do events alter long-range symptomatology or is their effect just temporary?

The following section on coping-adaptation variables makes inquiry regarding how factors such as social support networks and financial resources are related to events and their impact. Whether SES, racial, age, sex or marital status variables amplify or reduce the impact of events is involved in this question.

### LCEs, Coping Variables and Impairment

The literature investigating the influence of coping and adaptation variables on the relationship between LCEs and psychiatric symptoms is relatively new. Nonetheless, it has provided impressive evidence that such factors significantly ameliorate the impact of LCEs. For example, a study by Gersten et al. (1977) revealed that controlling for life processes (resources), "events made no minimally meaningful contribution to the prediction of any disturbed behavior" in a sample of adolescent subjects for whom only events outside the control of the subjects were examined. The authors conclude ". . .in other words, earlier disturbance would be associated with later events to the same degree as those events are associated with later disturbance" (Gersten et al., 1977:229). Factors described by them as contributing to the continuity of individual response over time were social supports, differences in perception of undesirability of events, differences in coping and defensive styles, and differential emotional insultation to events.

### Social Support Networks

A number of recent articles have stated that social support in many cases protects the individual against the deleterious effects of stress (Cassel, 1976; Cobb, 1976; Dean and Linn, 1977; Rabkin and Streuning, 1976; Kaplan, Cassel and Gore, 1977). Furthermore, Zubin (1978) states that 37 of the 43 events in the Holmes and Rahe (1967)



checklist involve a reduction of the social network relationship of the affected individual. Consequently, the fact that the majority of LCEs severely disrupt or alter existing social support network relationships might well account for the relationship between LCEs and symptomatology. Events, then, involve in most cases a temporary or even permanent diminution of social support. But it should be noted that the same event (e.g., death of a parent) will have widely different impacts on individuals, depending on the importance of the lost or weakened relationship in one's social support network.

Eaton (1978) employs a panel regression technique in his reanalysis of the Myers et al. (1975) data and finds that following LCE, psychiatric deterioration is much more likely for the unmarried than for the married. Kasl et al. (1975) and Pearlin and Johnson (1977) report similar findings. But in the Pearlin and Johnson study, multiple regression analysis revealed that 69% of the original association between marital status and non-psychotic depression is accounted for by economic deprivation, isolation from social networks, and frustrated or difficult parental responsibilities. Economic deprivation was found to be the strongest factor producing depression. Because the unmarried are more often exposed to all these conditions, they are more vulnerable to their effects. Social selection (downward social mobility hypothesized to result from genetic and/or

social developmental disadvantage which manifests in high levels of psychiatric symptomatology) is at most a marginal factor in this relationship.

According to Mueller (1978), social support network interpretations are generally consistent with the social causation hypothesis (high levels of psychiatric symptomatology described as resulting from social-structural related deprivation). However, with more serious mental disorders like schizophrenia the literature suggests that LCEs like those involving a weakening of social support networks, merely trigger rather than form symptoms (Brown and Birley, 1968; Brown et al., 1973). These latter studies, then, are more consonant with the social selection hypothesis in their emphasis on the importance of long-range developmental factors in etiology.

Qualifying this relationship is the finding of Brown et al. (1972) that there is a significant association between dysfunctional social support networks and psychiatric outcomes for schizophrenics. It was revealed that psychiatric patients living with relatives expressing high emotion at the time of admission were not as likely to relapse within a nine month period following their release if they were able to avoid close contact with the family and receive regular medication.

It is interesting to note that the social support networks of neurotics and psychotics are reported to differ

from those of the unimpaired in the following ways:

The primary networks of neurotics were relatively small (about 10 to 12 persons), often including persons who were dead or lived far away. The density of the interconnectedness of neurotics' networks tended to be low in comparison to the normative sample. . . . it is as if the neurotic person is at the hub of a wheel, with individual relationships like spokes that have no inter-relationship. Also neurotics more often rated interpersonal relationships with network members negatively than did normal subjects. The psychotic group, by comparison, had very small primary networks (four or five persons) that consisted mostly of family members. (Pattison et al., 1975:1249)

Since social support is a multidimensional phenomenon, such factors as source of support, kind of support given (whether emotional or financial), and intensity of relationship (whether confiding or non-confiding) must be taken into account. Brown et al. (1975), for example, found that for women who had experienced "a severe event or major difficulty" the consequent development of (non-psychotic) depression was highly related to the absence of an intimate, confiding relationship with husband or boyfriend. For women experiencing stressful events, 38% without such a confiding relationship developed depressive symptomatology, while only 4% of the women with a close male confidant did.

In a longitudinal study of life events, coping-adaptation resources and depressive symptomatology, Warheit (1979) discovered that Time 1 depression scores were the best predictor of Time 2 scores taken three years later. The

data indicated that life event losses are cushioned by the availability of interpersonal, familial and other resources. It was also revealed that low SES individuals are especially vulnerable to LCEs because they have fewer resources and experience more LCEs which can be defined as losses.

Finally, there are a number of studies which demonstrate a similar effect of coping-adaptation variables on various physical illnesses and problems. In a frequently cited study of pregnancy, Nuckolls et al. (1972) found that women with high scores on a social support measure who experienced high levels of change both before and during pregnancy had one-third the rate of complications of women with low social support scores. Social support, however, was not related to complications for women with low life change (low LCEs).

Indexes of familial and non-familial social support networks will be used in this study. It is anticipated that high levels of social support may lessen the impact of work-related LCEs (WRLCE) on psychiatric symptoms and functions.

### SES

According to B.P. and B.S. Dohrenwend (1969) the highest overall rates of psychiatric disorder have been found in the lowest social class in 28 out of 33 studies. Furthermore, this relationship applies to schizophrenia (in five out of seven studies) and personality disorders

(in eleven out of fourteen studies), although not to neurosis or manic depressive psychosis. The research done so far has provided no definitive answer to the question of whether "social causation" or "social selection" is the better hypothesis in explaining this relationship. It is noteworthy, however, that Dunham, a pioneer in epidemiological research on schizophrenia, has moved from support of social causation to a position of qualified support for social selection in his more recent work (1965, 1966).

In a landmark study Dunham et al. (1966) reanalyzed the Hollingshead and Redlich data (1958) employing a different methodology. Their findings revealed that schizophrenics are at a distinct disadvantage when entering the job market compared with their fathers despite greater educational achievement in their developmental years. This results in downward mobility for a high percentage of such individuals. While seeking employment, the schizophrenic's "traits, attitudes, mannerisms and verbal reactions become all too obvious and operate against the securing of (or advancing in) a position. . ." (Dunham et al., 1966:225).

Langner (1963) found that the greater the stress, the higher the mental health risk among lower social class groups compared with other SES categories. Many other researchers, including Warheit (1979), have had

similar findings. B.S. Dohrenwend (1973), for example, discovered that lower class individuals experience more unpleasant stressful life events which have a higher readjustment or change impact than do persons higher in the social system. In addition, it has been substantiated that lower class individuals have more fragile social support systems, disadvantaging them even further. More specifically, the lower class is characterized by high proportion of broken homes, ethnic minority status, unstable employment, residential mobility and low participation in community activities (Mueller et al., 1978).

Given all these factors, it is anticipated that work events may have a stronger impact on symptomatology for lower class workers than for middle and upper class workers. Occupational level is by itself an important consideration inasmuch as level of skill is directly associated with social prestige, income, and one's related ability to manipulate his environment and choose among alternatives. Therefore, it is expected that stressful events will probably be the most severe for unskilled blue collar workers and low-level white collar workers when compared with skilled blue collar workers and those in the professions and management.

It should be noted that SES will be broken down into its component parts in the analysis of the present study for reasons that will be explained in Chapter 3. Income

and an occupational-level index will constitute the primary SES-related measures used in examining the relationships described above.

### Race

Race is another factor that is closely tied into work expectations and demands. Pettigrew (1964) discusses the burdensome role of the Black in the U.S. which has included many forms of invidious discrimination from employers. The high unemployment statistics for Blacks in 1979 demonstrate how little things have changed in the past fifteen years for the lower class Black worker.

Warheit et al. (1975b) found that Blacks have significantly higher scores than Whites on five scales of psychopathology. But when their data are controlled for the variables SES, sex, and age, the differences between Whites and Blacks are reduced to non-significance (except on the phobia scale). In every instance, low SES was the most powerful predictor of high psychiatric symptomatology. It is expected, then, that race, when controlled for other major demographic variables, will have little impact on the relationship between psychiatric symptomatology and work in the present research.

Parenthetically, race (and ethnicity) can also be conceived in terms of social support. Holmes (1975), for example, found that controlling for social class, the highest rate

of TB in his Seattle survey occurred in those people who lived in neighborhoods where they were of distinct, unaccepted minority status. Similarly, it has been found that Blacks living in predominantly White areas have higher social deviance rates than Blacks living in mostly Black areas with the converse also holding true (Faris and Dunham, 1939; Klee et al., 1967).

### Sex and Age

Although the situation has changed considerably in recent years, occupation and occupational achievement are still more important for American males than females in terms of role expectations and demands. Because the sample used in the present research includes a relatively small number of female workers, a number of interesting questions regarding such issues will have to be reserved for future research.

A number of studies demonstrate that age is an important variable in work satisfaction (Meltzer, 1963; Spreitzer and Snyder, 1974). Older workers seem to be more satisfied with their work. This is perhaps because of lower aspirations, generational differences in terms of exposure to different historical influences, etc. It is not anticipated, however, that age will be significant in articulating the relationship of psychiatric symptomatology and work.



### Work and Mental Health

"Among all those activities peculiar to humans, work probably defines man with the greatest certainty" (O'Toole, Work in America, 1973:1). But if the appellation "homo faber" applies to man, what is the proper definition of work? Paid employment is the most popular conception of work. Because there is no more important status than occupation, particularly in the context of American culture, pay and social worth are commonly equated. Occupational prestige, though less important than pay, must also be included in this equation of social worth. Increasingly, these factors are coming to apply to both males and females as women augment their ranks in the professions.

There are a number of alternative definitions of work that do not involve remuneration as an inevitable concomitant. For example, work has been defined as "any activity that produces something of value for other people" (O'Toole, 1973:3). Still more elegant is Gross' definition: "Persons are said to be doing work when they have some goal in mind that they are seeking to obtain in a disciplined manner" (Gross, 1970:62). These broader definitions are not as useful for the purposes of this research as is the concept of paid employment. Nonetheless, work serves other social functions besides the economic. One's place of work, for example, is a setting in which to meet significant others, to achieve social acceptance or

marginality, and to affirm or reject previously held personal values and norms. Furthermore, Gross contends that our culture is still imbued with the Puritan Ethic which "... keeps people working by placing a negative value on idleness through requiring that the enjoyment of non-work be accompanied by an explanation" (Gross, 1970:65).

According to sociological theory, social roles have a transforming effect on human nature, sometimes enhancing an individual's sense of well-being and personal efficacy while at other times undercutting one's perception of personal worth and even one's basic health. Because of the unparalleled importance of the work role in American and other modern industrial societies, a convincing theoretical case can be made for work-related LCEs (WRLCE) having a significant effect on psychiatric symptoms and functions. The experience of unemployment, for example, may contribute not only to a debilitating financial insecurity, but also undermine one's basic sense of identity, self-esteem and emotional health.

In order to put the above in proper perspective, it should be noted that many people turn to other activities (e.g., hobbies and sports) and institutions (e.g., the family and religion) for their primary psychological rewards. Also, there is some support in the popular literature for the notion that this has been a "decade of

narcissism" in which the importance of the work role has been undermined while individual physical and "spiritual" development has been emphasized. A more important qualification on the effects of work role is that there seems to be significant and relatively constant individual variations in resilience toward LCEs which perhaps apply as well to WRLCE. Whether WRLCE more often precede increased psychiatric symptoms and functions, or predisposing psychiatric impairment more often precedes WRLCE is difficult to determine. This crucial issue will be carefully examined from both sides in the remainder of this chapter.

Finally, it should be made clear that outside the domain of the present study are the broad areas of work stress, e.g., work role conflict, ambiguity and overload, extent of responsibility for others, and repetitiveness and pace of work. While the data do not permit a detailed analysis of such topics, they do allow for a diachronic study of the relationship of psychiatric symptomatology to specific WRLCEs.

A closer examination of research supporting the view that work experience significantly affects mental health will now be presented.

### The Effects of Work on Mental Health

The literature on the mental health consequences of work is relatively limited. The unemployment studies of the late 1930's and early 1940's spawned by social and political concern for the consequences of the Great Depression, represent the earliest work of contemporary interest in the area. These early studies are characterized by a number of critical methodological shortcomings: they employ subjective measures, they do not distinguish short-term and long-term effects, and they do not include control groups (Kasl, 1973). In addition, there is the question as to whether conditions relevant to work and employment forty years ago still apply today.

Kornhauser's Mental Health and the Industrial Worker (1965) is perhaps the most quoted study articulating the effect of work on mental health. His conclusions include the finding that routine production workers have less satisfactory mental health than workers in more skilled and varied jobs. As with many other studies of this kind, he emphasizes self-esteem as a factor linking work and mental health:

Our interpretation is that job conditions impinge on working people's wants and expectations to produce satisfactions and frustrations which in turn give rise to favorable or unfavorable perceptions of self-worth, opportunities for self-development, and prospective gratification of needs. . . .the evidence as a whole accords with the hypothesis that gratification and

deprivation experienced in work and manifested in expressions of job satisfaction and dissatisfaction constitute an important determinant of a worker's mental health.  
(Kornhauser, 1965:89)

Regarding this specific point, Kahn and French (1970) disagree. Based on findings of the University of Michigan Survey Research Center research which examined the effects of work environment on health, they assert that self-esteem "is a more or less stable characteristic of the person that conditions the effects of social environment on performance" (Kahn and French, 1970:245).

Kornhauser (1965) qualifies the effect of work on mental health in his finding that job feelings such as work satisfaction constitute intervening variables. For example, he found that contrary to earlier findings, mechanically paced, repetitive work does not really affect mental health except perhaps in a symbolic way when workers equate being on such a job with failure.

Kornhauser notes a more general limitation to his work in the following:

Mental health affects job attitudes at the same time as it is affected by them; and both job feelings and mental health may have common causes, for example, lifelong personality attributes of cheerfulness or negativism, etc.  
(Kornhauser, 1965:18)

Unfortunately, he does not control for such factors in his design.

There are other difficulties in generalizing Kornhauser's findings, according to Roman (1969). Among the problems cited: Kornhauser's data are cross-sectional, making it impossible to show the extent to which there was self-selection for unskilled and repetitive jobs; and he assumes homogeneity of workers at different job skill levels. Furthermore, he overlooks social class differences within different groups and confounds his dependent variable by considering level of job satisfaction as an index of positive mental health. Roman is generally critical of other work literature which asserts or implies an unqualified causal linkage between work and mental health:

A major contaminant in such studies is socioeconomic status, which typically varies with occupational level, and which contains explanatory variables other than work-based experiences. A second major design problem (in such research) lies in the general absence of longitudinal data.  
(Roman, 1969:564-65)

Kasl (1973) takes a more positive position regarding literature which links work and mental health. He adds the qualification that although there is much evidence connecting the two variables, a precise causal interpretation of such studies is difficult. Also, Kasl, unlike Roman, is receptive to definitions of positive mental health and the related use of indexes of positive psychological functioning. He notes that studies taking this

approach indicate that workers in low-level jobs seem to limit their aspirations and expectations, to have low job involvement, and consequently little, if any, self-actualization. According to Kasl:

Studies of mental health in low-level, blue collar jobs suggest a coping process which essentially represents a trade-off: in order to maintain some tolerable level of well-being, self-actualization is 'sacrificed' by severe curtailment of aspiration and expected satisfactions from work. (Additional trade-offs, such as well-being in work role for well-being in other social roles such as parent, spouse, or consumer...do not appear to be operative). It is tempting to try to label the trade-off between well-being and self-actualization as 'good' or 'bad'. . . This, of course is impossible short of possessing some calculus for weighing well-being and self-actualization. . . (Kasl, 1973:515)

Kohn and Schooler (1973) make a stronger statement for the effect of work on psychological functioning in their research findings. Using a two stage "least squares" technique for estimating reciprocal synchronic causal effects of fifty separate occupational conditions with psychological functioning, they found the more determining variable to be work in twelve out of fifty different dimensions.

. . .the specific links between particular occupational conditions and particular facets of psychological functioning suggest that men's ways of coping with the realities of their jobs are generalized to non-occupational realities. (For example), men whose jobs require intellectual flexibility came not only to exercise their intellectual prowess

on the job but also to engage in intellectually demanding leisure-time activities. (Yet) nowhere in these data is there evidence that men turn their occupational frustrations loose on the nonoccupational world or try to find compensation in nonoccupational realities for occupational lacks or grievances. (Kohn and Schooler, 1973:117)

Their findings are theoretically compatible with neo-Marxian structural determinism inasmuch as they maintain that job demands are the product of the economic and social systems which shape workers' values and perceptions. But it should be understood that their delineation of "psychological functioning," which emphasizes dimensions of positive mental health, largely ignores dimensions of symptomatology investigated in the present and other research. Also, their findings are questionable inasmuch as they are not based on longitudinal data.

In a later longitudinal study (1978) by the same researchers, support is given their earlier arguments regarding the positive relationship between "substantive complexity" of occupation and intellectual flexibility off the job. They add, however, that their research has not yet demonstrated that substantive complexity directly affects values, self-conception, or social orientation. In other words, while their findings are provocative, they do not demonstrate anything more than one linkage in a complex nexus of interrelated work and mental health factors.



The preceding studies in this section emphasize positive definitions of mental health. Some observers maintain that concern with positive mental health dimensions like self-actualization reveals a middle class bias which has no place in blue collar worker studies. Yet it is difficult to discount the importance of the fact that lower class, low-skilled workers demonstrate relatively low job and life satisfaction, and poor self-concept and self-evaluation. Kasl (1973) asserts that much more must be learned before noxious elements in low-skilled jobs can be identified. It should be added that more needs to be learned about non-work-related noxious dimensions of lower class life as well. Negative family and community influences, for example, need more investigation. Also, the efficacy of "social selection" explanations for the higher incidence and prevalence of psychiatric symptomatology in the lower class require further study. A better understanding of such factors is needed before the effects of work can be put in perspective.

Qualifying and helping to clarify the relationship between work and mental health are studies which examine the effects of resource-adaptation variables. Gore (1978), for example, in a longitudinal investigation of the physical and mental health consequences of unemployment due to two plant shutdowns discovered that there were no differences between the "supported" (workers who received emotional

support from their wives) and "unsupported" with respect to length of unemployment or to economic deprivation. However, during the period of unemployment, the unsupported workers demonstrated greater physical and mental symptomatology than the supported ones. The unsupported more commonly expressed self-blame for being unemployed and had a greater sense of economic deprivation than their counterparts. Gore suggests that one reason for the difference is that those receiving social support are not dependent on accomplishments for self-esteem while the unsupported must depend primarily on instrumental accomplishments for their feelings of self-worth.

Brown (1975) affirms both the importance of the work role and social supports for individual mental health in a study of British working women. Four factors were found to increase the chances of developing a psychiatric disorder following a severe LCE: loss of mother in childhood, having three children under the age of sixteen, lack of an intimate or confiding relationship with husband or boyfriend, and a lack of full-time or part-time employment. Seventy-nine percent of the women who had the first three factors working against them and who were also unemployed "became disturbed" after experiencing a major LCE. Only 14% of the employed women who were in the same situation did so, however. The authors caution that their findings only hint at such a possible relationship because it is

based on a very small sample. Furthermore, a number of difficulties were pointed out in interpreting the role of employment: having a job might serve a protective function by improving economic circumstances, alleviating boredom, bringing greater variety in social contacts or an enhanced sense of social worth. Although some combination of all of these factors is probably operative, the authors continue that:

We were particularly interested in a few of these women in our sample who took up employment a few weeks after the occurrence of a severe event, none of whom developed psychiatric disturbance. Their comments suggest that a sense of achievement might be crucial.  
(Brown et al., 1975:244).

Coburn (1975) sustains the linkage between work and mental health in a study which conforms to McGrath's (1970) stress model discussed earlier. He found that a poor fit between individual capacities and work demands may lead to mental and physical health problems. This is particularly the case for overly complex work. Overly simple work has only moderate psychological and mild physical effects. It was also discovered that perceived incongruence has a much greater effect on mental health than does objective incongruence. It would seem, then, that his study includes too many subjective variables to be fully valid. But Coburn maintains that he has controlled for the tendency to view the world, job and health in a similarly positive or negative manner.

Finally, Gross (1970) makes some general criticisms of research describing work as a major precipitant of stress and mental illness. He claims that such studies fail to take into account the many sources of stress-producing individual-group conflict which are outside the work organization. Furthermore, he contends that it is the small group as exemplified by the family and community that is the most tyrannical in imposing discipline on the individual rather than large work organizations. Also, Gross questions those studies which implicitly assume that such factors as job anxiety and aggression are in every case negative factors for job adjustment and related mental health. Such factors, he claims, are not only inevitable but necessary to motivate workers to complete tasks and, indirectly, to feel challenged or fulfilled by their work.

In summation, there are a number of shortcomings to studies examining the effects of work on mental health. First, much of this segment of the literature deals primarily with positive dimensions of mental health which has resulted in a frequent blurring of the distinction between work attitudes and mental health. Furthermore, the general applicability of a number of positive dimensions of mental health like self-actualization is questionable. Also, it is significant that most of these studies fail to control for antecedent symptomatology and many of them give only superficial consideration, if any, to SES

background factors. In addition, it should be noted that in every study discussed, a large measure of the variance of the relationship of work and mental health can be explained in terms of subjective individual qualities which precede the work situation. Finally, the literature is said to overlook sources of stress outside the work organization and to underestimate possible positive functions of stressful work experience for the individual.

On the other hand, this segment of the literature has provided evidence that negative work environment can at least to some degree affect self-esteem, a dimension of positive mental health that cannot be ignored. Also, the literature establishes that aspects of the work environment, like complexity of work, have effects which carry over into nonoccupational areas of life. One study claims that a poor fit between individual capacities and work may lead to mental and physical health problems. Significantly, another study suggests that employment may act as a prophylactic to prevent psychiatric disturbance in subjects otherwise lacking in coping-adaptation resources.

Inasmuch as this body of literature is relatively new and incomplete, its inadequacies obscure the potential for progress in future research. Giving direction to future research efforts are a number of innovative topical and methodological suggestions. Among them, Kasl (1973) proposes that there should be longitudinal studies of

various naturally occurring events like job promotion, demotion, and layoff. This dissertation endeavors to augment research efforts in this specific area.

Now for another view of the relationship between work and mental health, a review of that literature giving direct support to the hypothesis that predisposing mental health factors established long before the onset of career are largely the basis for poor work adjustment and WRLCE.

#### The Effects of Mental Health on Work

There is much in the literature to suggest that mental symptoms and functions affect work behavior. While poor mental health is not a necessary cause of poor work adjustment, a significant relationship has been demonstrated in many studies. This is particularly the case with schizophrenia and other serious mental illnesses. Tiffany (1970) points out that the most serious mental problems will affect the occupational sphere. This relationship is further supported in a study by Cole et al. (1966) who found that schizophrenics perform poorly on the job in their ability to adjust to new situations, in their judgment, quality of work, personal appearance, and cooperativeness. Also, Hamburger and Hess (1970) report that job difficulties were experienced by 60% of schizophrenic patients in the five-year period preceding admission to a mental hospital.

McEwen (1974) discusses the significance of other kinds of predisposing psychological factors affecting the adaptability of workers in different types of jobs. Retardates, for example, tend to be found in jobs where noise levels and demands for exactness, speed, and team work were relatively high. Psychiatric cases generally held jobs where all these factors were lower. McEwen hypothesizes that the difference is the result of retardates having a lower arousal level than psychiatric cases, thus being able to withstand more stress before their performance deteriorated.

The literature supporting the effect of predisposing mental health factors on work experience is at least implicitly developmental in theoretical perspective. There are a number of studies which directly examine related issues. Robins (1966), for example, in her comprehensive longitudinal study of sociopathically disturbed children concluded that they are much more likely to remain disturbed and/or deviant as adults than are control subjects. Parenthetically, Robins reports that sociopathic children in adulthood had consistently higher rates of unemployment, longer periods of unemployment, lower occupational status, more frequent job changes and lower income than other subjects. Similarly, Waldron (1976) found that early childhood neurosis bears a significant relation to psychosocial adjustment in adulthood. In comparing

the mental health of a group of young adults who had been given psychiatric treatment for neurosis in childhood with a control group, it was found that more than 75% of the former patients were at least "mildly ill" at follow-up compared with only 15% of the control group.

Apparently, similar definitions and responses to mental illness occur cross-culturally and therefore have something to do with a process which is at least in part genetic. Murphy (1976), for example, reports that parallel patterns of behavior are labeled abnormal cross-culturally in five geographically scattered non-Western societies. According to Murphy:

Explicit labels for insanity exist in (all the cultures studied). (In each case) the labels refer to beliefs, feelings, and actions that are thought to emanate from the mind or inner state of an individual (which) are essentially beyond his control. . . . The afflictions bear strong resemblance to what we call schizophrenia. . . . Almost everywhere a pattern composed of hallucinations, delusions, disorientations, and behavioral aberrations appears to identify the idea of 'losing one's mind,' even though the content of these manifestations is colored by cultural beliefs. (Furthermore) the different cultures (all) react to people they define as mentally ill with a complex of responses. . . . including an ambivalent-appearing mixture of care giving and social control. These reactions are not greatly dissimilar from those that occur in Western society. Nor does the amount of mental illness seem to vary greatly within or across the divisions of Western and non-Western areas. (Murphy, 1976:1027)



In contrast with the other research discussed in this section, Cumming (1963) and Neff (1968) contend that the ability to work is part of a more or less autonomous area of personality that has its own developmental process. Turner (1977), for example, in a study of the work patterns of schizophrenics discovered that a substantial majority of those judged mildly to moderately impaired were employed in stable full-time jobs. Surprisingly, even a small majority of those judged severely impaired were employed full-time. However, the unemployment rate of those ever hospitalized was twice that for the never hospitalized group. It should be noted that Turner at no point in his study denies the strong association between work failure and schizophrenia. His investigation simply seeks to define the nature and limits of this relationship.

In a later related study, Turner and Gartrell (1978) employ multiple regression in an analysis of factors related to outcome of schizophrenia as measured by time spent in hospital. Work performance, defined as the ability to hold a job, was significantly related to indexes of severity of pathology and social competence. Severity of pathology was judged by a panel of psychiatrists who had no knowledge of the patient's social competence. This approach is questionable, though, since degree of social functioning is often an important formal consideration in both the admission and discharge of patients.

In conclusion, all of the studies discussed in this section underscore the relationship between antecedent psychiatric symptomatology, which is described as having roots in socialization and genetic endowment, and later work adjustment. Turner's findings perhaps qualify this relationship but by no means account for it.

### Summary

The relationship between work and mental health has been extensively investigated in the literature with divergent methodologies and ambiguous findings. This research endeavors to add to our knowledge of people with mental problems by investigating the reciprocal effects of psychiatric symptomatology and its related psychosocial dysfunction with work-associated life events. Based on the literature and theory presented in this chapter, three general hypotheses have been developed to guide the present research. Key terms will be operationalized in the next chapter.

First, there is a body of literature which claims that stressful work experience results in a higher incidence of mental problems for workers. This supports the credibility of the following hypothesis:

Hypothesis 1: The level of prior work events (WRLCE) is directly related to subsequent psychiatric symptom and dysfunction score levels.

Second, recent research reporting the stability of symptomatology cross-culturally and over time underscores the importance of examining the social outcomes of mental illness. In the context of the present study, this suggests the desirability of measuring the effects of prior symptoms and functions on subsequent work behavior as articulated in the following:

Hypothesis 2: Those with high prior symptom and dysfunction scores will have a larger number of subsequent WRLCE than those with low prior scores.

Third, there is increasing evidence in the literature that resource-adaptation variables considerably ameliorate the impact of LCE. In the present research, this is translated into an interest in the degree to which different kinds of resource variables like SES and social support networks buffer the impact of WRLCE. Hence, the third and final general hypothesis:

Hypothesis 3: The occurrence of WRLCE will produce a greater increase in symptom and dysfunction scores for those with few resources than for those with many resources.

## CHAPTER 3

### METHODOLOGY

This chapter begins with a review of the Florida Health Study and its follow-up. The major variables included in the present study are then described in detail. These include the general psychoneuroticism scale (HOS), psychosocial dysfunction scale (PDS), and work-related life crisis events scale (WRLCE). This is followed by a description of key demographic and resource controls. In the plan of analysis, the hypotheses are formally introduced and the application of appropriate statistical tests discussed. The chapter concludes with the presentation of ancillary measures of work-related behavior and techniques for their analysis.

#### Background to Study

This dissertation is based on data secured as part of a psychiatric epidemiological study conducted in Alachua County, Florida. Data on social and medical variables were obtained by means of a 317-item interview schedule administered initially in 1970-71. The instrument included questions on demographic data and social history, items concerning familial and interpersonal relations, life satisfactions, and indices concerning religion,

racial distance, anomie, social aspirations and change. In addition, detailed physical and mental symptomatology inventories and items concerning attitudes toward and utilization of health services were encompassed in the survey (Warheit et al., 1975; Schwab et al., 1979).

The adult, non-institutionalized population of the county constituted the target for the study. A statistical probability sample of residential electrical hook-ups, augmented by sampling from county maps in some areas, resulted in a master sample of 2,315 of the 31,115 households in the community. Then the Kish (1965) technique for randomizing respondents within households was employed. It has been suggested that with this technique the weighting of samples is sometimes necessary to avoid underrepresentation of large households. The survey did not require such weighting, however, since preliminary analyses using both weighted and unweighted samples revealed no major differences.

A pretest of 322 respondents was conducted in order to refine the survey instrument. Of the remainder of the master sample list, total non-response was 17.5% with a refusal rate of 8.8%. This resulted in a total of 1,645 interviews obtained.

Then, in 1973, a systematic stratified subsample of 1970 respondents was re-interviewed in a follow-up which replicated most of the material obtained in the 1970 study. The non-response rate was 13.4%; 517 interviews were obtained.

### Major Social-Psychiatric Variables

To help measure social-psychiatric impairment several scales were developed. These included the Health Opinion Survey (HOS) a measure of general psychoneuroticism, general psychopathology, cognitive impairment, psychosocial dysfunction, anxiety, depression and phobia. These scales, drawn from approximately 100 items relating to psychiatric symptom and symptom-related dysfunctions, were designed to measure clusters of symptomatology considered to be components of social psychiatric impairment. There was no attempt to diagnose individual disorders since such identification remains beyond the capability of field survey procedures. This general approach is consistent with the epidemiological objective of the research which was to identify groups that would most likely constitute the case loads of Community Mental Health Centers.

It should be noted that preliminary validation of these scales has been established with a number of patient groups. Furthermore:

Supporting evidence of their validity is provided by the following: (1) many of the items included were drawn from prior psychiatric research; (2) the items were examined by a panel of experts and their content was judged to be appropriate; (3) factor analytic procedures empirically confirm their grouping into scales; and (4) the scales have an acceptable level of consistency as measured by Cronbach's Alpha (1951).  
(Warheit et al., 1975b:245)

Two of the above scales are utilized in this research; these are the HOS and psychosocial dysfunction.

### The HOS Scale

Until the development of Macmillan's Health Opinion Survey (1957), most psychiatric screening tests had been created for the selection of individuals in various institutional situations, e.g., the military and business. MacMillan devised his test as part of an epidemiological project in order to detect those adults in the general population whose responses approximated those of psychiatric patients and differed from those of controls drawn at random from a number of rural communities. More specifically, his aim was to identify community adults who would likely be identified by psychiatrists as psychoneurotic cases.

The test was constructed from a number of sources:

Its core was 15 questions from the Army's Neuropsychiatric Screening Adjunct with additional questions reported to be useful neurotic discriminators by Eysenck, Rimoldi, and others. (Furthermore), local general practitioners were consulted by the author in order to establish criteria as to the suitability of the various items.  
(Macmillan, 1957:328)

Out of the many potential test questions, twenty items were chosen which distinguish hospitalized neurotics from the community samples as a whole and subgroups within it.

Employing a weighted score based on discriminant function analysis, Macmillan found that 25% of the community sample (N=419) had scores in the case category compared with 92% of the neurotic hospital sample (N=78).

Macmillan's index and modifications of it have achieved widespread use in the literature (e.g., Leighton, 1963; Spiro et al., 1972; Warheit et al., 1975). In one version, Leighton (1965) replaced several items of the index to make it more applicable to general populations. Research for this dissertation employs this modified version.

Although no claim has been made for the use of the HOS as a diagnostic tool, the validity of the index as an epidemiological screening device for psychoneuroticism is supported by a number of studies (Kuldau et al., 1976; Moses et al., 1971; Spiro et al., 1972; Schwartz et al., 1973). Kuldau et al. (1976), for example, found significant differences for the HOS between four out of five general population risk groups and hospitalized psychoneurotics ( $p > .05$ ). Only those community respondents in the highest risk category could not be distinguished from patients. This is not surprising since the highest risk group, by virtue of the items defining risk, included individuals who had prior treatment for psychiatric problems and/or who had severe physical health problems. Analysis of the data used in the present study has revealed that the HOS, in conformance with its intended use, taps psychoneuroticism



better than any other diagnostic category. The data also demonstrate that the HOS clearly distinguishes between neurotic and psychotic patients ( $p < .01$ ), with neurotics receiving significantly higher scores. Analysis of these data and other studies also give evidence that the HOS successfully identifies psychoneuroticism. Kuldau et al. (1976) defend this quality of the index in the following:

(The HOS index) has the advantage of showing high levels of symptomatology which are not characteristic of a limited number of specific diagnoses but cut across the entire range of patients commonly treated by community mental health centers. (Kuldau et al., 1976:1)

Another important issue is the stability of the index over time. A comparison of HOS values over a three year period resulted in a high degree of stability ( $r = .73$ ), discounting suggestions that the index measures only transient phenomena like physical illness or temporary stress resulting from unusual LCE.

Tousignant et al. (1974) have rejected the HOS as an epidemiological tool. Their main criticism of the instrument is what they consider to be the biasing effect of items tapping physical illness. Yet, according to Schwab et al. (1970) and other researchers, many patients' illnesses cannot be dichotomized solely as psychiatric or medical. In fact, it seems that individuals with a high record of physical symptomatology commonly manifest high

psychiatric symptomatology as well. Neither factor has been identified as antecedent to the other in the literature.

#### The Psychosocial Dysfunction Scale

The Psychosocial Dysfunction Scale (PDS) was created as part of the Florida Health Survey in order to measure psychiatric symptom-related inabilities to perform social roles. The scale contains items gauging the degree to which worry, nervousness or fear of having a nervous breakdown interfere with respondents' functioning. These items tap functions which are common to work, family and social life.

The scale was analyzed for internal consistency and found to have an overall Cronbach's Alpha of .88 and item-whole correlations ranging from 0.48 to 0.67. This indicates high reliability.

#### Measurement of Life Crisis Events

For purposes of the present research, an LCE has been defined as a life experience, such as being fired from one's job, which is focused in time and involves some kind of change in role or status that is potentially upsetting for the individual. In the measurement of these events, Paykel et al. (1971) employed the average degree of "upset" created by 61 different events rated on a scale of from 0 to 20. They gave primary consideration to the undesirability of events since they believed this to be

highly related to psychiatric symptoms, which was their primary concern. The more frequently cited Holmes and Rahe (1967) schedule of recent life events, by contrast, estimates the degree of readjustment required by events and ignores the dimension of desirability. It should be noted that B.S. Dohrenwend (1973) and Myers et al. (1971) have reported significant differences in the effects of desirable and undesirable events. Hence, this dissertation employs work-related events included in the Paykel index since the objectives of this study are basically consistent with those of the Paykel index.

Paykel et al. (1971, 1972) found that the majority of crisis events fell into exit (loss) categories such as social separations. These events were also more heavily weighted and more strongly related to psychiatric symptomatology. Also, the great majority of events (48) were judged by Paykel et al. (1972) either as "probably symptom dependent" or as having an unknown relationship with prior symptomatology. Only 13 of the events were defined as having no probable relationship with prior symptomatology. These were events that were either externally determined like the major illnesses of a family member, or somehow connected with the life cycle such as births and deaths. Most of the events included, then, are seen as potentially symptom-related.

While the Paykel index does not measure multiple occurrences of the same event, a comparison with a similar measure which did, revealed virtually no difference ( $r=.96$ ) (Holzer, 1977).

#### Measures of Work-Related Life Crisis Events (WRLCE)

WRLCE are measured in an unweighted scale of total job events. Previous research (Holzer, 1977) demonstrates no significant difference between analyses employing weighted and unweighted versions of LCE. This measure of total job events is complemented by two measures which differentiate between those events which are probably symptom-related and those which are not. The first of these measures, "Major Event," is a composite of five events having a likely association with prior symptomatology: business failure, demotion, fired, troubles with boss or co-workers and unemployed for one month. The second measure, "Minor Event," is a composite of three events having an unlikely association with prior symptomatology: change in line of work, change in work conditions, and change in work hours. While there are cases in which crises such as being fired or having troubles with one's co-workers are the consequences of healthy self-assertion in an unhealthy, repressive work environment, there is evidence that such situations are not typical (Tiffany, 1970; Robins, 1966).

### Demographic and Resource Control Variables

Standard demographic controls are employed throughout the presentation of findings. Among these are race, sex, age, and marital status. Income, occupation, and interpersonal resources function as coping-resource variables.

Dunham et al. (1966) provide evidence that an aggregate SES measure is an imprecise tool for psychiatric epidemiology since they found educational attainment to be a less reliable predictor of level of functioning than level of income or occupation. They also found that individuals who were high in education but low in income and average in occupational level were more likely to experience higher dysfunction than those who had high income but were low in the other two areas. Hence, because this study is concerned with work and work-related functioning, it is better to differentiate between the three components of SES so as not to confound their influence.

### Plan of Analysis: Foundations

Employing the above operational definitions based on the scales utilized, it is possible to formalize the three major hypotheses introduced in Chapter 2 and to discuss the application of appropriate statistical techniques. The first part of the analysis describes the formal testing of hypotheses treating component measures

of WRLCE with the HOS, the PDS, demographic and resource variables. The second part of the analysis describes related tests of secondary work behavior measures.

### Primary Methods of Analysis

Chi square tests of significance and one-way analysis of variance are employed in the crosstabular presentation of data. In addition, multiple regression analysis includes F tests of significance. While most of the important relationships are longitudinal, synchronic relationships are also examined. In cases where few variables are being considered, emphasis is placed on the crosstabular display of data. When a greater number of independent variables enter the analysis, however, multiple regression is favored. Multiple regression offers the advantage of permitting the measurement of many diverse variables as they relate to a given dependent variable. Further, it does not require any process of elaboration (Kerlinger, 1973).

### Multivariate Analysis of Change Scores

Crosstab displays of HOS and PDS scores permit simple comparisons of case and non-case categories for different demographic and social resource groups. For example, HOS scores above 30 and PDS scores above 5 put respondents into probable cause categories. Examining change in caseness over time as it relates to WRLCE and

and other control factors is one of the primary concerns of the present study. Crosstab displays offer the advantage of easy partitioning of continuous variables into distinct categories.

Multiple regression analysis of change scores offers a powerful interval level measure which has even greater utility for purposes of this study since it produces a percentage of total variance explained by the impact of each independent variable on the dependent variable. However, Cronbach and Furby (1970) and Bohrenstedt (1968) are among those who caution that statistical regression towards the mean is particularly a problem with this variety of change score analysis. More specifically, multiple regression change scores for those high in symptomatology at time 1 will tend to be negative (lower) at time 2. Hence, there is a natural regression towards the mean for high and low scores over time.

Fortunately, this difficulty can be corrected for in a multiple regression equation which calculates HOS scores ( $T_1$ ) from a model containing HOS ( $T_2$ ) as the predictor variable. The following model, based on the work of Holzer (1977) contains such a correction factor. More importantly, it provides the foundation for the present multiple regression analysis.

$$HOS, T_2 = \beta_0 + \beta_1 HOS, T_1 + \epsilon \quad (3.1)$$

In the above, HOS,  $T_2$  is the dependent variable;  $\beta_0$  is a constant which is derived from the shift in the mean HOS score from  $T_1$  to  $T_2$ ; HOS,  $T_1$  is the independent variable; and  $\epsilon$  is the symbol for random error which accounts for individual lack of fit in the model (Holzer, 1977:62).

Expanding the above model to include estimation of the influence of WRLCE on change in HOS scores over time results in the following equation:

$$\text{HOS, } T_2 = \beta_0 + \beta_1 \text{ HOS, } T_1 + \beta_2 \text{ WRLCE} + \epsilon \quad (3.2)$$

It is a relatively simple matter to expand the above formula as additional controls are required.

As pointed out at the beginning of the plan of analysis, terms in multiple regression equations can be interdependent to varying degrees. The introduction of crossproducts as shown in equation 3.3, centered by subtracting the means of each component variable before inclusion in the equation, results in the avoidance of the distorting effects of such variable overlap on multicollinearity:

$$\begin{aligned} \text{HOS, } T_2 = & \beta_0 + \beta_1 \text{ HOS, } T_1 + \beta_2 \text{ WRLCE} + \beta_3 \text{ Income} \\ & + \beta_4 \text{ WRLCE} \times \text{Income} + \epsilon \end{aligned} \quad (3.3)$$

A complete discussion of this and related matters is in Holzer (1977). Finally it should be noted that the  $p < .05$  level of probability will be used throughout as the level for rejecting the null hypothesis.



### Plan of Analysis: Formal Hypotheses

This section consists of an outline of the various means whereby the formal hypotheses will be tested. By way of review, the general analytic framework upon which the following hypotheses are constructed is illustrated in Figure 3.1.

Providing a foundation and introduction for the formal hypothesis testing described below are simple crosstabular breakdowns of HOS and PDS caseness scores by different social and demographic variables. Statistical tests include chi square and one-way analysis of variance (ANOVA).

#### Hypothesis #1

The first hypothesis investigates the relationship between events and symptoms:

It is hypothesized that if life crisis events have a deleterious effect on mental health, then those with a large number of WRLCE will have higher symptom and dysfunction scale scores than those experiencing few or no events, controlling for  $T_1$  scores.

Multivariate chi square and ANOVA of change in HOS and PDS case/non-case statuses over time controlling for "major event" and "minor event" (WRLCE) constitute the first set of tests of this hypothesis. Constituting the second set of tests of the hypothesis are multiple regression analyses of HOS and PDS change scores

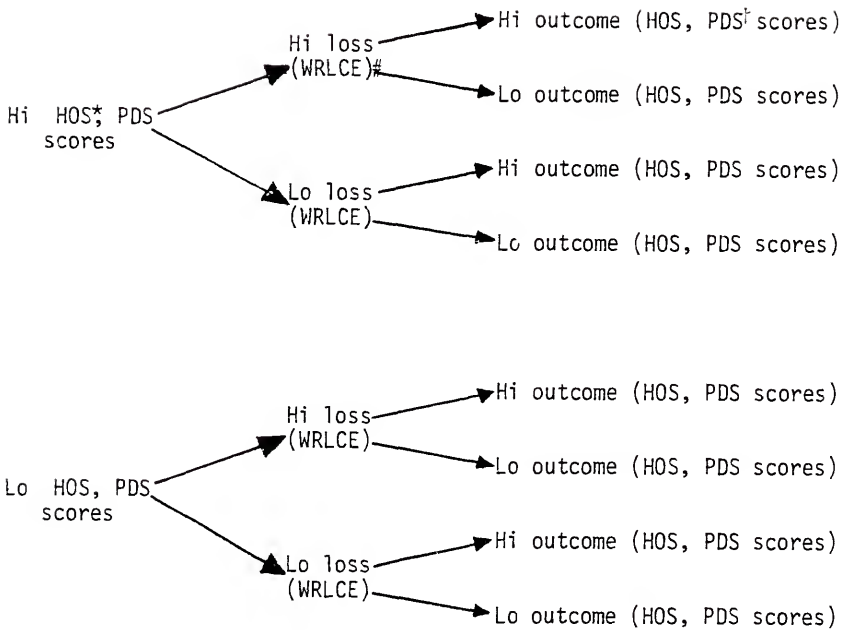
$[T_2]$ 

Figure 3.1 Different Possible Outcomes of HOS\* and PDS† Scores Over Time Controlling for WRLCE#

controlling for three continuous WRLCE measures: job event total, major job event total, sex, age, race, marital status, and part-time/full-time work status.

### Hypothesis #2

The second hypothesis focuses on the relationship between symptoms and events:

It is hypothesized that if psychiatric symptoms produce a greater number of life crisis events, then those with high symptom and dysfunction scale scores ( $T_1$ ) will have a larger number of WRLCE ( $T_2$ ) than those with low  $T_1$  scores.

The major tests of this second hypothesis consist of multiple regression analyses of HOS and PDS scores,  $T_1$ , with criterion variable WRLCE score measures ( $T_2$ ) controlling for sex, age, race, marital status, part-time/full-time job status and income.

### Hypothesis #3

The third hypothesis examines the relationship between events, coping resources and symptoms:

It is hypothesized that if social and economic resources mitigate the impact of life crisis events, then the occurrence of WRLCE will produce a greater increase in symptom scale scores for those with few social and economic resources than for those with many such resources.

Because of the large number of variables involved in this hypothesis, concern for analytic clarity dictates

the creation of two distinct sub-hypotheses:

- A. It is hypothesized that if economic resources mitigate the impact of life crisis events, then the occurrence of WRLCE will produce a greater increase in symptom scale scores for those low in income and occupation than for those high in income and occupation.

In order to test the above, multiple regression equations for the criterion variables HOS ( $T_2$ ) and PDS ( $T_2$ ) are introduced. Income, WRLCE, occupational level, and standard demographic controls are included as independent variables.

- B. It is hypothesized that if social support resources mitigate the impact of life crisis events, then the occurrence of WRLCE will produce a greater increase in symptom scale scores for those with less social support than for those with greater social support.

This sub-hypothesis is also tested in a multiple regression equation for dependent variables HOS and PDS. The primary independent variable, support, is a measure derived from dummy variables for marital status, presence of family and friends on whom one can depend, and whether one has a friend of the opposite sex (for single individuals). These components of one support measure are also entered individually in various regression equations. Standard demographic controls are employed among the independent variables.

### Other Measures of Work Behavior

A number of secondary measures of work behavior were developed for the present research. Although these measures are not necessary to test any of the hypotheses, they offer a means of complementing and clarifying the relationship of WRLCE with other variables in the research design. First among these is an index based on reasons given by respondents for having left their last job. Negative reasons for having left former job include the following: diffuse job dissatisfaction, specific job dissatisfaction, discharged/fired/laid off, physical health, authority relationships, interpersonal relationships and inability to perform work. Positive or external demand reasons include: plant closing/end of work, retirement, change for advancement, marriage, and family problems. This measure is useful inasmuch as it parallels WRLCE in content and precedes it in time.

In addition, years employed on current job and number of times unemployed complement the WRLCE focus on short-term work crisis experiences by providing insight into long-range stability of work behavior.

Finally, the present study includes indices of occupational and income mobility. These measures permit investigation of the relationships between changes in occupation and income levels over time compared with changes in HOS and PDS scores.

### Tests of Secondary Work Behavior Variables

Three work-related measures tap work behavior variables which preceded the first interview: reasons left last job, times unemployed (in the three years preceding the first interview) and years employed on current job. Each of these variables is tested for degree of correlation with  $T_1$  HOS, PDS, and subsequent WRLCE scores. Controls for age, race, sex, income, part-time job status, and social support are included in the analysis.

Finally, the variables, income difference and occupational difference, constitute intervening measures between  $T_1$  and  $T_2$  psychiatric scale scores. The effect of these social resource-related measures of social mobility on criterion HOS and PDS change scores is determined by multiple regression analysis employing standard demographic controls.

## CHAPTER 4

### FINDINGS

#### Introduction

This chapter presents a discussion of the employed sample composition and the general distribution of HOS and PDS scores, followed by a presentation of the tests of hypotheses described in Chapter 3. These statistical tests, appropriate for crosstabular data presentation and multiple regression analysis, provide a framework for the presentation of data. The chapter concludes with an analysis of findings of ancillary measures of work-related behavior.

#### Employed Sample Characteristics

Individuals reporting full or part-time employment at T<sub>2</sub> constitute the sample of employed people (N=267); thirty-nine of these were part-time workers. They were included in order to learn more about their social demographic and scale score differences with full-time workers.

It should also be understood that respondents who were no longer employed at T<sub>2</sub> (N=43) were retained in the sample so that factors contributing to the attrition of the working population could be considered. Their

loss of employment is considered an important outcome which should not be overlooked.

Table 4.1 introduces the analyses which follow with a breakdown of the primary demographic and resource variable characteristics of the full sample of 1645 respondents compared with the sub-sample of employed people interviewed at Time 1 ( $T_1$ ) and Time 2 ( $T_2$ ) ( $N=267$ ).

Tables 4.2 through 4.5 display social and demographic variable breakdowns of HOS and PDS scores for the full original and longitudinal employed sample of respondents. Because the central research questions of this study all deal with the reciprocal effects of WRLCE with HOS and PDS scale score levels, no direct analysis of the formal hypotheses is involved at this point. However, a foundation for the analyses which follow is given in these tables. For example, breakdowns of income and occupational level variables provide a framework for understanding how social resource variables modulate HOS and PDS scale score levels. This helps clarify the later analysis of Hypothesis 3 which examines the interrelationship between WRLCE, psychiatric scale scores and social resource variables.

Table 4.2 displays full sample ( $N=1645$ ) HOS case-ness scores by sex, race, age, and personal income. Females, the elderly, Blacks and those under \$3000 in income all had significantly higher mean scores and



Table 4.1 Demographic Characteristics of the Original and Follow-up Worker Samples.

	Full Sample 1970 Data (N=1645)		Sample of Workers (T <sub>1</sub> ) (N=299)		Follow-up Sample of Workers (T <sub>2</sub> ) (N=299)	
	N	%	N	%	N	%
<u>SEX</u>						
Male	736	44.7	147	55.1	147	55.1
Female	909	55.3	120	44.9	120	44.9
<u>AGE</u>						
16-22	270	27.1	11	4.1	5	1.9
23-29	315	25.9	40	15.0	27	10.1
30-44	411	25.0	103	38.6	97	36.3
45-59	332	20.2	86	32.2	96	36.0
60 +	315	19.2	27	10.1	42	15.7
<u>RACE</u>						
Black	366	22.3	77	28.8	77	28.8
White	1267	77.0	189	70.8	189	70.8
Other	12	0.7	1	0.4	1	0.4
<u>INCOME</u>						
Under \$3,000	119	14.6	47	17.6	30	13.3
3,000-5,999	291	35.7	88	33.0	41	18.2
6,000-9,999	240	29.4	63	23.6	61	27.1
10,000-14,999	96	11.8	42	15.7	51	22.7
15,000 +	70	8.6	27	10.1	41	18.2
<u>MARITAL STATUS</u>						
Single	295	17.9	22	8.2	19	7.1
Married	1002	60.9	199	74.5	196	73.4
Widowed	170	10.3	16	6.0	20	7.5
Separated	69	4.2	12	4.5	8	3.0
Divorced	102	6.2	18	6.7	21	7.9
Common Law	7	0.4	0	0.0	0	0.0
<u>EDUCATION</u>						
Grade School	304	18.5	43	16.1	46	17.4
Some High School	246	15.0	40	15.0	29	10.9
High School Graduate	319	19.4	80	30.0	78	29.4
Some College	436	26.6	36	13.5	41	15.5
College Graduate	336	20.5	68	25.5	71	26.8

Table 4.2 Full Sample HOS Scale Scores  
By Sex, Age, Race, Income

	<u>Number</u>	<u>Mean</u>	<u>Percent Case</u>
<u>TOTAL</u>	1645	27.5	17.3
<u>SEX</u>			
Male	736	26.7	21.6
Female	909	28.0	33.8
		***	***
<u>AGE</u>			
16-22	270	27.1	25.6
23-29	315	25.9	6.5
30-44	411	26.7	23.8
45-59	332	28.5	34.9
60 +	317	29.2	41.3
		***	***
<u>RACE</u>			
Black	336	29.0	39.3
White	1267	26.7	25.4
		***	***
<u>INCOME (Personal)</u>			
Under \$3000	119	28.6	32.7
3,000-5,999	291	27.1	27.0
6,000-9,999	240	25.2	12.0
10,000-14,999	96	25.1	13.6
15,000 +	70	25.3	12.5
		***	***

\*  $p < .05$   
 \*\*  $p < .01$   
 \*\*\*  $p < .001$   
 Chi square for Caseness  
 Anova for Means

S.D.  
 4.3  
 to  
 6.4

percentages in the case range than did their social and demographic opposites. The inverse relationship between income and caseness is consistent with findings in the literature of an inverse relationship between SES and psychiatric scale scores (Warheit et al., 1973; B.P. and B.S. Dohrenwend, 1969).

Table 4.3 presents HOS scores for the employed sample at  $T_1$  and  $T_2$  for key social and demographic variables. The relatively low N of this sample is likely to result in the underestimation of some values; caution should therefore be employed in their interpretation.

The same general pattern of relationships found in Table 4.2 are similar for sex, race, and income in Table 4.3, although their level of significance is diminished and has disappeared altogether in several cases. The relationship for age differs, though, in that there is relatively low caseness for those sixty and over. This last relationship suggests that those among the elderly who remain employed form a cadre of "healthy survivors." Their subsequent experience of higher caseness,  $T_2$ , can perhaps be attributed to difficulties in adjusting to retirement, and to the development of physical disabilities. Regarding this last comment, it should be noted that physical symptomatology has been associated with higher HOS caseness levels (Schwab et al., 1970).

Table 4.3 Employed Sample HOS Scale Scores By  
Key Social and Demographic Variables

	<u>Time 1</u>			<u>Time 2</u>		
	N	Mean	% Case	N	Mean	% Case
<u>TOTAL</u>	267	26.68	21.3	267	27.07	23.6
<u>SEX</u>						
Male	147	25.98	15.6	147	26.34	20.4
Female	120	27.53	28.3	120	27.98	27.5
		*	*		*	
<u>AGE</u>						
16-22	11	27.82	27.3	5	26.2	20.0
23-29	40	25.15	10.0	27	25.93	18.5
30-44	103	26.15	18.4	97	25.95	13.4
45-59	86	27.80	29.1	96	28.13	31.3
60 +	27	26.93	22.2	42	28.14	33.3
<u>RACE</u>						
Black	77	27.57	27.3	77	29.49	28.8
White	189	26.32	19.0	189	26.10	16.4
					*	**
<u>INCOME (Personal)</u>						
Under \$3,000	47	29.62	36.2	26	30.28	38.5
3,000-5,999	88	27.07	22.7	41	28.34	24.4
6,000-9,999	63	25.71	17.5	60	25.78	20.0
10,000-14,999	42	25.10	14.3	51	25.00	17.6
15,000 +	27	24.96	11.1	41	23.67	2.4
		..**	*		..**	**
<u>OCCUPATIONAL LEVEL</u>						
Upper White Collar	92	26.02	19.6	92	25.22	8.7
Lower White Collar	45	26.42	20.0	45	26.67	20.0
Upper Blue Collar	56	25.50	9.4	56	26.05	18.9
Lower Blue Collar	74	28.53	32.4	74	30.42	47.3
		..*	*		**	***
<u>WORK STATUS</u>						
Full-Time	228	26.02	18.0	197	26.69	14.5
Part-Time	39	29.23	41.0	26	29.42	41.0
		..*	*		..*	***

\* p&lt;.05

\*\* p&lt;.01

\*\*\* p&lt;.001

Chi square for Caseness

Anova for Means

S.D.

2.6

to

5.8

Of particular interest is the significant relationship between occupational level and HOS caseness. Lower (unskilled) blue-collar workers experience the highest symptom level in both surveys for caseness ( $p < .05$ ,  $p < .01$ ) and mean scores ( $p < .01$ ). Surprisingly, the upper (skilled) blue-collar workers have the lowest HOS caseness and mean scores of any group at  $T_1$  and the second lowest at  $T_2$ . Their scores are consistently lower than those of lower (clerical) white-collar workers, suggesting that skilled blue-collar workers are selected for their higher level of adjustment and/or that they experience a comparatively healthy work environment.

Another important relationship is the higher caseness and mean score levels of part-time workers ( $N=39$ ) ( $p < .05$ ,  $p < .01$ ). That high level of caseness should be related to part-time work status indicates that work-related symptomatology and work dysfunction are to some extent related. Further supporting this relationship is the finding that  $T_1$  part-time workers have approximately three times the employment drop-out rate of full-time workers ( $p < .001$ ).

As described earlier, individuals no longer employed at  $T_2$  ( $N=43$ ) were retained in the longitudinal sample so that factors contributing to the attrition of the working population might be considered. Since only 11.6%

of the respondents in this group stated that they were "in between jobs," the group is composed almost entirely of people who decided to leave the labor market, 55% of whom are under sixty years of age. Statistical analysis of this group demonstrates a distinctly disadvantaged profile, with significantly higher HOS caseness and mean score levels both at  $T_1$  ( $p < .01$ ) and at  $T_2$  ( $p < .001$ ). In addition, lower educational ( $p < .001$ ) and income levels ( $T_1$ ), were reported. Finally, individuals in this group are older ( $p < .001$ ) and more commonly female ( $p < .001$ ). These relationships are consistent with repeated research findings describing a strong on-going association between socioeconomic and psychiatric symptom-related disadvantage (B.S. Dohrenwend, 1973; Warheit, 1979).

The patterns of association for PDS scores with social and demographic factors in Tables 4.4 and 4.5 are basically the same as those for HOS with several exceptions. First, PDS scores are lower for the total population than are HOS scores. It has been suggested that this is because PDS taps a deeper level of psychiatrically diagnosed disability which is less commonly found in the population than factors tapped by HOS (Arey, 1976). Second, PDS score level is inversely related to age. Warheit et al., (1973) comment that this and other

Table 4.4 Full Sample PDS Scale Scores  
By Sex, Age, Race, Income

	Number	Mean	Percent Case
<u>TOTAL</u>	1645	2.5	14.3
<u>SEX</u>			
Male	736	5.5	10.5
Female	909	7.3	17.5
		***	***
<u>AGE</u>			
16-22	270	3.2	24.8
23-29	315	2.2	17.5
30-44	411	2.5	15.8
45-59	332	2.5	16.3
60 +	317	1.9	13.6
			**
<u>RACE</u>			
Black	336	8.6	24.0
White	1267	5.9	11.7
		***	***
<u>INCOME (Personal)</u>			
Under \$3,000	119	3.3	23.5
3,000-5,999	291	2.5	16.8
6,000-9,999	240	1.2	7.4
10,000-14,999	96	1.9	13.5
15,000 +	70	1.7	9.7
		***	

\*p<.05  
 \*\*p<.01  
 \*\*\*p<.001  
 Chi square for Caseness  
 Anova for Means

S.D.  
 3.9  
 to  
 9.2

Table 4.5 Employed Sample PDS Scale Scores By  
Key Social and Demographic Variables

	<u>Time 1</u>			<u>Time 2</u>		
	N	Mean	% High	N	Mean	% High
<u>TOTAL</u>	267	2.13	15.4	267	2.58	18.4
<u>SEX</u>						
Male	147	1.40	10.9	147	2.05	15.6
Female	120	3.02	20.8	120	3.22	21.7
		*	*			
<u>AGE</u>						
16-22	11	2.45	27.3	5	0.0	0.0
23-29	40	1.55	12.5	27	2.93	25.9
30-44	103	2.45	16.5	97	2.12	12.4
45-59	86	2.31	17.4	96	3.24	26.0
60 +	27	1.04	3.7	42	2.17	11.9
<u>RACE</u>						
Black	77	2.31	19.5	77	4.06	24.7
White	139	2.06	13.8	189	1.97	15.9
					*	
<u>INCOME (Personal)</u>						
Under \$3,000	47	4.26	29.8	26	5.51	30.8
3,000-5,999	88	2.22	18.2	41	2.89	19.5
6,000-9,999	63	.94	6.3	60	1.68	10.0
10,000-14,999	42	1.98	11.9	51	1.19	15.7
15,000 +	27	1.15	7.4	41	.67	7.3
		**	**		**	
<u>OCCUPATIONAL LEVEL</u>						
Upper White Collar	92	1.84	12.0	92	1.67	15.2
Lower White Collar	45	2.07	13.3	45	2.62	15.6
Upper Blue Collar	53	1.55	9.4	53	1.27	5.7
Lower Blue Collar	74	2.95	23.0	74	4.65	32.4
					**	***
<u>WORK STATUS</u>						
Full-Time	228	1.70	12.7	197	2.05	14.2
Part-Time	39	3.65	30.8	26	4.08	30.8
			**			**

\* p .05  
 \*\* p .01  
 \*\*\* p .001  
 Chi square for Percent High  
 Anova for Means

S.D.  
 1.6  
 to  
 6.9



measures of anxiety are more associated with youth than most other commonly employed psychiatric measures of symptomatology.

#### Description of WRLCE

Table 4.6 lists the various measures which comprise the primary work behavior variables in this study. It should be noted that the five events with the highest "upset" ratings define the Major Event variable and that the three events at the bottom of the scale define the Minor Event variable employed in this chapter. In all, 54(20.2%) of the total number of respondents experienced one or more major work-related event and 76(28.5%) experienced one or more minor event during the time period between the two interviews. Among those reporting work events, 51 (52%) experienced two or more events. Only 13 (13.3%) claimed they sustained two or more major WRLCE, however.

#### Tests of Hypotheses

Hypothesis 1: Stability of HOS and PDS over time controlling for WRLCE. An initial test of Hypothesis 1 is based on a simple crosstabular dichotomization of respondents into case and non-case categories. PDS scores are divided into high and low categories depending on whether scores are one standard deviation above or below

Table 4.6 Paykel's Work-Related Items, Their Weights and Frequency of Occurrence (N=267).

Event	Paykel's Upset Rating	Respondents Reporting Event	
		<u>N</u>	<u>%</u>
1. Business Failure	16.46	4	1.5
2. Fired	16.45	5	1.9
3. Unemployed for one month	15.26	34	12.7
4. Demotion	15.05	2	0.7
5. Troubles with Boss or Co-Workers	12.21	22	8.2
6. Change in Work Hours	9.96	50	18.7
7. Change in Work Conditions	9.23	37	13.9
8. Change in Line of Work	8.84	34	12.7

Table 4.7 Transition of Respondents Between Case Categories Controlling for WRLCE

	<u>Transition from Non-Case to Case</u>			<u>Transition from Case to Non-Case</u>	
	Number of Non-Cases $T_1$	Percentage Becoming a Case		Number of Cases $T_2$	Percentage Remaining in the Case Category
<u>HOS Scores</u>					
<u>Event Type</u>					
No Event	136	10.1%	$X^2=4.11$	31	61.3% $X^2=2.79$
Minor	35	8.6	N.S.	9	55.6 N.S.
Major	37	21.6		17	82.4
<u>PDS Scores</u>					
	<u>Transition from high to low score status</u>			<u>Transition from low to high score status</u>	
<u>Event Type</u>					
No Event	153	8.5%	$X^2=6.90$	16	56.3% $X^2=0.76$
Minor	35	11.4	$p<.05$	9	44.4 N.S.
Major	38	23.7		16	62.5

the mean. Again, Hypothesis 1 states that the experience of WRLCE is related to higher levels of symptoms and dysfunctions at  $T_2$ .

The findings presented on the left-hand side of Table 4.7 show that those experiencing major work events are more than twice as likely to fall into the case/high scale score groups at  $T_2$  than those experiencing no events or only minor events. This gives qualified support to the hypothesis.

The statistics on the right-hand side of the table give only limited support to Hypothesis 1, however, in that they reveal only a trend for greater retention of those with major WRLCE in the HOS case and PDS high categories. It should be considered that small N's might be devaluating the significance of the values displayed.

#### Regression Analysis of HOS and PDS Change Scores

A regression model for analysis of change in HOS and PDS scores has been created for the methods chapter. This model, as applied to Hypothesis 1, predicts  $T_2$  HOS and PDS scores from  $T_1$  scores and measures of WRLCE. Additional control variables include age, income, sex, race, marital status and full-time/part-time work status. The last four of these are treated as dummy variables. For example, part-time employed individuals are coded

as "1" and full-time employed individuals are coded as "0" in the part-time variable.

As stated in the last chapter, it is important to avoid multicollinearity among key variables when employing regression techniques. To recapitulate, multicollinearity is a situation in which the degree of association between the independent and any one of the control variables changes with the value of a second control. Because of an expected association between part-time work status and the experience of (fewer) work events, a cross-product term for the interaction between these variables has been introduced into the regression equations for Hypothesis 1. Additional interaction terms have been added for Hypothesis 3 and will be pointed out later.

In the regression equation presented in Table 4.8 it can be seen that  $T_1$  HOS scores accounted for more explained variance in  $T_2$  HOS scores than any other factor ( $F=178.206$ ,  $p<.001$ ,  $RSQ$  change = 32.886%). This finding is as expected since the stability of HOS over time has been established in other studies, a number of which are concerned with these data (Warheit, 1979; Holzer, 1977).

While the  $F$  score for major WRLCE was relatively high (3.265) and explained approximately 3.1% of the variance in  $T_2$  HOS scores, it failed to achieve a level

Table 4.8 Regression Analysis of T<sub>2</sub> HOS Scores as Change from T<sub>1</sub> HOS Scores, Using Major WRLCE and Sociodemographic Controls as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
HOS, T <sub>1</sub>	0.660	0.614	0.050	178.206	p<.001
Major WRLCE	0.836	0.084	0.463	3.265	N.S.
Race-Black	2.263	0.190	0.428	18.370	p<.001
Sex-Female	-0.164	-0.015	0.506	0.105	N.S.
Part-time	1.604	0.102	0.739	4.711	p<.05
Age	0.023	0.054	0.019	1.386	N.S.
Not Married	0.051	0.004	0.573	0.008	N.S.
Part-time x WRLCE	0.004	0.000	0.533	0.000	N.S.
(Constant)	7.319				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	8	4137.918	517.239	36.582	p<.001
Residual	255	3605.539	14.139		

Multiple R            0.731  
 R Square             0.534  
 Standard Error      3.760

of significance in the equation. It should be noted that major WRLCE was selected over total WRLCE for this and other tests of relationship because preliminary analysis showed it was a better predictor of  $T_2$  HOS and PDS scores than the other two WRLCE measures.

Although they have considerably smaller F scores than HOS, several other variables produced levels of significance in the total equation: part-time work status ( $F = 4.711$ ,  $p < .05$ ) and race ( $F = 18.370$ ,  $p < .001$ ). The high significance for race should be interpreted cautiously because controls for income and other social resource variables are not called for in this hypothesis. It will be recalled that scale score differences for race repeatedly have been reduced to non-significance when controlled for SES (Warheit et al., 1975b). The same result is anticipated when income is used as a control. Finally, the significant positive association between part-time work status and higher levels of HOS scale scores is in keeping with the crosstabular findings already presented.

The independent variables in this regression together explain 53.4% of the variance in  $T_2$  HOS scores.  $T_1$  HOS scores accounted for 36.172% of the variance, WRLCE and other work-related variables for 13.287% with sex, race, age and marital status combined explaining the remaining 3.978%.

In Table 4.9 the same basic equation is introduced for  $T_1$  and  $T_2$  PDS scores. Because PDS is a less stable measure over time than HOS, the total variance explained in this regression by  $T_1$  scale scores is comparatively lower (27.992%). Another difference is the greater significance for major WRCLE ( $F = 5.555$ ,  $p < .05$ ). This finding is not surprising inasmuch as the PDS scale was designed to gauge psychiatric dysfunction syndromes and therefore would relate more closely to work dysfunction measures like WRLCE than does the HOS.

Race is less significant in this regression ( $F = 6.937$ ,  $p < .01$ ) while work status remains at approximately the same level ( $F = 6.155$ ,  $p < .05$ ). In addition,  $T_2$  PDS demonstrates much greater sensitivity to the interaction between WRLCE and work status ( $F = 8.375$ ,  $p < .001$ ). Sex, age and marital status retain the same general pattern of non-significance in this equation, however.

The combined independent variables in this equation explain 37.0% of the variance in  $T_2$  PDS scores. Again,  $T_1$  PDS scores alone account for 27.992%. Work-related variables define 6.616% of the total and sociodemographic variables together explain the remaining 2.343%.

Hypothesis 2: The Relationship between WRLCE and antecedent HOS and PDS scores. If WRLCE are significant predictors of  $T_2$  PDS, what is the nature of the relationship



Table 4.9 Regression Analysis of T<sub>2</sub> PDS Scores as Change from T<sub>1</sub> PDS Scores, Using Major WRLCE and Sociodemographic Controls as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
PDS, T <sub>1</sub>	0.540	0.427	0.069	60.401	p<.001
Major WRLCE	1.181	0.127	0.501	5.56	p<.05
Race-Black	1.505	0.136	0.571	6.9	p<.05
Sex-Female	-0.151	-0.014	0.551	0.075	N.S.
Part-time	1.955	0.133	0.788	6.15	p<.05
Age	0.010	0.025	0.021	0.211	N.S.
Not Married	0.543	0.047	0.634	0.735	N.S.
Part-time x WRLCE	1.702	0.153	0.588	8.375	p<.01
(Constant)	-0.060				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	8	2479.337	309.917	18.680	p<.001
Residual	255	4230.568	16.590		

Multiple R            0.608  
 R Square             0.370  
 Standard Error      4.073

between  $T_1$  PDS and HOS scores with subsequent WRLCE? The results of multiple regression tests of Hypothesis 2 found in Tables 4.10 and 4.11 provide an answer to this question.

A clear pattern of inverse association between age and WRLCE emerged in these two tables. Age was the most significant predictor of WRLCE both in the equation including HOS ( $F = 45.182, p < .001$ ) and in the equation including PDS ( $F = 38.929, p < .001$ ) as one of the independent variables. Furthermore, similar high levels of significance were found in preliminary analyses using major and minor WRLCE, respectively, as the dependent variable. That younger workers experience more LCE in their work environment than older workers probably relates to their unsettling search for an occupational niche.

The second strongest predictor of WRLCE was antecedent HOS ( $F = 15.333, p < .001$ ) in Table 4.10 and antecedent PDS ( $F = 27.499, p < .001$ ) in Table 4.11. These findings support Hypothesis 2 in demonstrating a strong relationship between WRLCE and antecedent symptoms and dysfunctions. Furthermore, the larger  $F$  score for PDS supports the theoretical assumption that PDS surpasses HOS as a predictor of work dysfunction. Finally, as with age, preliminary analyses revealed similarly high levels of significance for HOS and PDS employing major and minor WRLCE each as the independent variable.

Table 4.10 Regression Analysis of HOS and Sociodemographic Predictors of WRLCE Scores.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
HOS, T <sub>1</sub>	0.050	0.224	0.013	15.333	p<.001
Income, T <sub>1</sub>	-0.000	-0.077	0.000	1.309	N.S.
Sex-Female	-0.322	-0.140	0.145	4.973	p<.05
Race-Black	-0.118	-0.047	0.156	0.576	N.S.
Not Married	0.404	0.155	0.154	6.873	p<.01
Age	-0.033	-0.374	0.005	45.182	p<.001
(Constant)	0.958				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	6	72.654	12.109	11.534	p<.001
Residual	260	272.971	1.050		

Multiple R            0.459  
 R Square             0.210  
 Standard Error      0.191

Table 4.11 Regression Analysis of PDS and Sociodemographic Predictors of WRLCE Scores.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
PDS, T <sub>1</sub>	0.079	0.294	0.015	27.499	p<.001
Income, T <sub>1</sub>	-0.000	-0.102	0.000	2.486	N.S.
Sex-Female	-0.372	-0.162	0.142	6.849	p<.01
Race-Black	-0.084	-0.033	0.153	0.306	N.S.
Not Married	0.295	0.113	0.153	3.729	N.S.
Age	-0.030	-0.339	0.005	38.929	p<.001
(Constant)	2.076				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	6	84.205	14.034	13.958	p<.001
Residual	260	261.420	1.005		

Multiple R            0.494

R Square              0.243

Standard Error       1.003

In Table 4.10 the third most salient variable after HOS was marital status ( $F = 6.873$ ,  $p < .01$ ). Although marital status fell just below the level of significance in Table 4.11 ( $F = 3.729$ ), these relationships provide some support for the assumption that single people are more likely to experience WRLCE than married people. This adds a new consideration to research findings which report greater psychiatric deterioration over time and after experience of LCE for single individuals (Eaton, 1978; Perlin and Johnson, 1977).

Sex was inversely related to WRLCE in Table 4.12 ( $F = 4.973$ ,  $p < .05$ ) and in Table 4.13 ( $F = 6.849$ ,  $p < .01$ ). It can be argued that males experience a greater number of work-related crisis events because of social norms which dictate that they pursue more challenging (and consequently more crisis-ridden) careers than females.

To recapitulate, in Table 4.10, age explained 13.725% of the variance, antecedent HOS accounted for 3.847%, marital status for another 2.394% and sex for .785%. The remaining variables, income and race, together defined only .271% of the variance. All these variables combined together explained 21.0% of the variance in subsequent WRLCE ( $F = 11.534$ ,  $p < .001$ ). In Table 4.11 age accounted for 11.325%, with antecedent PDS coming in a close second with 10.069% of the variance explained. Sex accounted for

1.573% and marital status for 1.159% of the variance. These variables, combined with race and income, explained 24.3% of the total variance in the dependent variable, WRLCE ( $F = 13.958, p < .001$ ).

Hypothesis 3: The relationship between WRLCE, social resource variables and subsequent HOS and PDS Scores. Hypothesis 3 is tested in multiple regression equations in Tables 4.12 through 4.17. The first two tables in this group examine the effects of income and occupational level, first, on  $T_2$  HOS and, second, on  $T_2$  PDS. Similarly, Tables 4.15 and 4.16 report the effects of a measure of social support on  $T_2$  HOS and  $T_2$  PDS. The final two tables for Hypothesis 3 combine income, occupation and support variables in an overview of the combined effects of social resource variables on  $T_2$  symptom and dysfunction scales.

Again, the first set of tests of Hypothesis 3, found in Tables 4.12 and 4.13, deal with the effects of income and occupational level. In Table 4.12,  $T_1$  HOS explained more of the variance in  $T_2$  HOS scores than all the other variables combined ( $F = 176.259, p < .001, RSQ \text{ Change} = .45.066\%$ ). As in Hypothesis 1, HOS demonstrated great stability over time in this test.

Supporting the hypothesis was the significant relationship between occupational level and  $T_2$  HOS

Table 4.12 Regression Analysis of Time 2 HOS, Using Income, Occupation and WRLCE as Predictors

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
WRLCE	0.055	0.012	0.222	0.061	N.S.
HOS, T <sub>1</sub>	0.658	0.613	0.050	176.259	p<.001
Income	-0.000	-0.348	0.000	3.377	N.S.
Occupational Level	0.202	0.154	0.068	8.764	p<.01
Income x Occupational Level	0.000	0.338	0.000	3.614	N.S.
WRLCE x Occupational Level	-0.053	-0.045	0.052	1.073	N.S.
Part-Time	1.460	0.092	0.769	3.605	N.S.
Part-Time x WRLCE	0.178	0.015	0.560	0.101	N.S.
Race-Black	-0.247	-0.021	1.109	0.049	N.S.
Black x Income	0.000	0.138	0.000	2.635	N.S.
(Constant)	9.225				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	10	4302.763	430.276	31.639	p<.001
Residual	253	3440.691	13.500		

Multiple R 0.745

R Square 0.556

Standard Error 3.688

( $F = 8.764$ ,  $p < .01$ ,  $RSQ \text{ Change} = 3.721\%$ ). Income, however, failed to achieve significance ( $F = 3.377$ ). Part-time work status ( $F = 3.605$ ) was also not significant; nor were interaction terms for income and occupational level ( $F = 3.614$ ) and race and income ( $F = 2.635$ ). WRLCE was not significant in the equation and contributed only 2.250% of the variance. When combined together, all the variables in this regression had a coefficient of determination of 55.6%.

Time 1 PDS scores (Table 4.13) explained more of the variance in  $T_2$  PDS scores ( $RSQ = 14.976\%$ ) than any other single predictor. As in the tests for Hypothesis 1, however, it displayed less stability over time than did HOS. Otherwise, there is little parallel between Tables 4.12 and 4.13. Neither occupational level nor income was significant in predicting  $T_2$  PDS. Also, PDS, as in previous equations, displayed greater sensitivity toward the interaction displayed between life events and part-time work status ( $F = 6550$ ,  $p < .05$ ) and between race and income ( $F = 2.640$ , N.S.), factors which were much weaker in the preceding regression for HOS. In combination, the variables in this equation were significant at the  $p < .001$  level ( $F = 31.639$ ) and explained 36.9% of the variance in PDS scores over time. Although not significant, WRLCE contributed 3.0577 of the explained



Table 4.13 Regression Analysis of Time 2 PDS Using Income, Occupation and WRLCE as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
Income	-0.000	-0.251	0.000	1.241	N.S.
Occupational Level	0.804	0.066	0.075	1.135	N.S.
WRLCE x					
Occupational Level	0.030	0.026	0.058	0.260	N.S.
Income x					
Occupational Level	0.000	0.198	0.000	0.868	N.S.
Part-time	1.530	0.104	0.848	3.252	N.S.
Part-time x WRLCE	1.600	0.144	0.625	6.550	p<.05
Race-Black	0.736	0.066	1.227	0.359	N.S.
Black x Income	0.000	0.028	0.000	0.076	N.S.
WRLCE	0.364	0.082	0.252	2.091	N.S.
PDS, T	0.536	0.424	0.069	59.997	p<.001
(Constant)	1.230				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	10	2472.570	247.257	14.763	p<.001
Residual	253	4237.335	16.748		

Multiple R           0.607  
R Square             0.369  
Standard Error       4.092

variance. Finally, income and occupation together accounted for 5.566% of the variance.

The second set of tests of Hypothesis 3 deal with the mitigating effects of social support on  $T_2$  HOS and PDS. In preliminary tests using the social support measure introduced in Chapter 3 it was found that the "family" and "friend" components considerably diminished its strength as a predictor of key variables. A pared down, but stronger support measure has replaced it which includes marital status and the presence or absence of a close friend of the opposite sex (for single respondents). In terms of the present research, the limitations of the original, more inclusive support measure are in some ways analogous to the limitations of SES discussed in Chapter 3.

In Table 4.14 the modified support measure was significant at the  $p < .05$  level ( $F = 5.414$ ). By comparison, in a regression employing the original measure described in Chapter 3, the significance was low ( $F = 1.674$ ). As in preceding regressions, the strongest predictor of  $T_2$  HOS was  $T_1$  HOS ( $F = 200.645$ ,  $p < .001$ ), contributing 48.130% of the total explained variance (51.6%) in the equation. Importantly, WRLCE did not exhibit significance ( $F = 3.427$ ), emphasizing the comparative importance of social support ( $F = 5.414$ ) on  $T_2$  HOS scores. Part-time work status was significant in the equation, however, ( $F = 4.881$ ,  $p < .05$ ).

Table 4.14 Regression Analysis of Time 2 HOS, Using Social Support and WRLCE as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
HOS, T <sub>1</sub>	0.711	0.654	0.050	200.645	p<.001
Support	-1.539	-0.104	0.662	5.414	p<.05
WRLCE x Support	1.503	0.290	0.703	4.566	p<.05
WRLCE	-1.300	-0.268	0.702	3.427	N.S.
Part-time	1.586	0.102	0.718	4.881	p<.05
Part-time x WRLCE	0.405	0.034	0.634	0.408	N.S.
(Constant)	10.066				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	6	4185.735	697.622	46.111	p<.001
Residual	260	3933.614	15.129		

Multiple R 0.718

R Square 0.516

Standar Error 3.890

There was also significant interaction between WRLCE and social support ( $F = 4566$ ,  $p < .05$ ). The overall equation had an  $F$  score of 46.111 ( $p < .001$ ).

Similar general patterns emerge in Table 4.15 for PDS, with social support again significant at the  $p < .05$  level ( $F = 6.131$ ). The tables differ in two respects, however: the lower stability of PDS over time ( $F = 63.464$ ,  $p < .001$ ,  $RSQ$  Change = 29.52), and the greater impact of the interaction term for part-time and WRLCE on the dependent variable. In summation, the overall equation was significant,  $p < .001$  ( $F = 23.737$ ) with a 35.4% coefficient of determination.

Tables 4.16 and 4.17 combine the various social resource variables introduced in the previous four tables to determine their relative strength as predictors of  $T_2$  HOS and PDS score levels. The independent variables in these two regressions do not include sex, age, race or part-time work status since initial tests demonstrated that these controls generated weak associations ( $F < 1.000$ ) in combination with variables presented in Tables 4.16 and 4.17.

The relationship found in Tables 4.16 and 4.17 help put into better perspective those presented in the preceding four tables. In the equation for  $T_2$  HOS (Table 4.16), both income ( $F = 6.600$ ,  $p < .05$ ) and

Table 4.15 Regression Analysis of Time 2 PDS, Using Social Support and WRLCE as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
PDS, T <sup>2</sup>	0.513	0.438	0.067	63.464	p<.001
Support	-1.773	-0.128	0.716	6.131	p<.05
WRLCE x Support	0.223	0.046	0.759	0.087	N.S.
WRLCE	0.245	0.054	0.756	0.106	N.S.
Part-time	1.612	0.110	0.766	4.430	p<.05
Part-time x WRLCE	1.375	0.123	0.690	3.967	p<.05
(Constant)	2.494				

<u>Analysis of Variance</u>					
		Sum of Squares	Mean Square	F	Significance
Regression	6	2513.214	418.869	23.737	p<.001
Residual	260	4588.111	17.647		

Multiple R            0.595

R Square              0.354

Standard Error       4.201

Table 4.16 Regression Analysis of Time 2 HOS, Using Combined Social Resource Variables and WRLCE as Predictors.

Variable	<u>Regression Coefficients</u>			F	Significance
	B	Beta	Standard Error Beta		
WRLCE	0.334	0.033	0.621	0.290	N.S.
Income	-0.000	-0.444	0.000	6.660	p<.05
WRLCE x Income	-0.000	-0.010	0.000	0.041	N.S.
Social Support	-0.818	-0.056	0.654	1.567	N.S.
HOS, T <sub>1</sub>	0.653	0.608	0.049	178.560	p<.001
WRLCE x Support	0.106	0.021	0.310	0.117	N.S.
Occupational Level	0.235	0.179	0.064	13.571	p<.001
WRLCE x Occupational Level	-0.062	-0.051	0.061	1.035	N.S.
Income x Occupational Level	0.000	0.411	0.000	6.152	p<.01
(Constant)	10.779				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	9	4212.282	468.031	33.666	p<.001
Residual	254	3531.173			

Multiple R            0.738

R Square              0.544

Standard Error       3.729

occupational level ( $F = 13.571$ ,  $p < .001$ ) retained significance. That there was considerable overlap between these two variables, demonstrated in their interaction term ( $F = 6.152$ ,  $p < .05$ ), was not surprising. Not anticipated, however, was the greater efficacy of occupational level as a predictor in the equation compared with income.

Importantly, both social support ( $F = 1.567$ ) and WRLCE ( $F = 0.290$ ) lose considerable power in this regression. The remaining interaction terms also are low in significance and, hence, are unable to shed any light on this development. As suggested previously, however, it is probable that the relatively low number of workers experiencing WRLCE has tended to deflate the impact of this measure.

All the variables in the equation together generated a coefficient of determination of 54.4% ( $F = 33.666$ ,  $p < .001$ ). The bulk of this variance was explained by  $T_1$  HOS (37.388%) and a combination of income and occupation (11.538%).

In Table 4.17 it can be seen that  $T_2$  PDS displayed less sensitivity towards income ( $F = 3.279$ , N.S.) and occupational level ( $F = 1.628$ , N.S.) than did HOS. Although support ( $F = 3.117$ , N.S.) and WRLCE (1.703, N.S.) also failed to reach significance in this equation, they were comparatively stronger. The lack of significance of all the variables except for  $T_1$  PDS ( $F = 64.655$ ,  $p < .001$ , RSQ Change Score = 15.569%) can be attributed in part to

Table 4.17 Regression Analysis of Time 2 PDS, Using Combined Social Resource Variables and WRLCE as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
WRLCE	0.900	0.097	0.690	1.703	N.S.
Income	-0.000	-0.369	0.000	3.279	N.S.
WRLCE x Income	-0.000	-0.093	0.000	2.372	N.S.
Support	-1.287	-0.094	0.729	3.117	N.S.
Support x WRLCE	0.173	0.036	0.350	0.243	N.S.
Occupational Level	0.090	0.074	0.071	1.628	N.S.
WRLCE x occupational level	-0.000	-0.000	0.068	0.000	N.S.
Occupational level x Income	0.000	0.277	0.000	1.968	N.S.
PDS, T <sub>1</sub>	0.557	0.440	0.069	64.655	p<.001
(Constant)	3.230				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	9	2342.252	260.250	15.135	p<.001
Residual	254	4367.653	17.195		

Multiple R            0.591  
 R Square             0.349  
 Standard Error       4.147



the inclusion of interaction terms in the regression. Such inclusion generally has a deflating effect on related independent variables, while at the same time giving the researcher insight into redundant and synergistic effects in the equation. Together, all the variables in this equation had a correlation of determination of 34.9% ( $F = 15.135$ ,  $p < .001$ ).

These regressions show that occupational level can be a powerful indicator of HOS scores, a finding which is consistent with observations in the literature of a strong inverse relationship between SES and psychiatric symptoms (Warheit, 1975b; Holzer, 1977).

#### Ancillary Measures of Work Behavior

In addition to WRLCE, the Florida Health Study includes a number of work-related measures which call for investigation at this point. They are, "length of time in present place of employment," "number of times unemployed," and "reasons for leaving former job." These  $T_1$  measures have been tested as dependent variables in cross-sectional regression that employ basically the same set of independent variables. The findings of these analyses are summarized in this final section of Chapter 4. Also included in this section are findings of longitudinal gauges of change in income and occupation over time.

Table 4.18 displays a cross-sectional regression analysis of  $T_1$  correlates of length of time in present place of employment. The relatively low F score for the equation as a whole (3.143,  $p < .01$ ) was characteristic of associations in most of the ancillary work measure regressions. Variables exhibiting significance in the equation were part-time work status ( $F = 8.093$ ,  $p < .01$ ), income ( $F = 7.735$ ,  $p < .01$ ), and the interaction terms for these two variables ( $F = 4.748$ ,  $p < .05$ ). In more direct terms, individuals with full-time employment earning higher salaries tended to remain in the same job longer than part-time low income workers. Men also tended to stay with the same job longer than women.

The remarkably low significance of PDS ( $F = 0.875$ , N.S.; RSQ Change = .417%) in this equation was very similar to the finding for HOS ( $F = 0.576$ , N.S.; RSQ Change = .167%) in another regression not presented here in tabular form.

Table 4.19 presents the findings of a multiple regression analysis of unemployment (that is, the number of times unemployed in the three-year period preceding the  $T_1$  interview). The unemployment index was unique among the secondary work measures in its high level of association with HOS ( $F = 16.077$ ,  $p < .001$ ; RSQ Change = 7.928%). In a similar equation testing for PDS, the

Table 4.18 Cross-Sectional Regression Analysis of Length of Time in Present Place of Employment, Using PDS and Key Sociodemographic and Social Resource Variables as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
Part-time x Income	-0.002	-0.270	0.001	4.748	p<.05
PDS	-0.118	-0.062	0.126	0.857	N.S.
Sex-Female	-1.784	-0.115	1.092	2.668	N.S.
Race-Black	3.024	0.179	2.310	1.714	N.S.
Social Support	1.135	0.099	0.740	2.351	N.S.
Part-time	8.513	0.379	2.992	8.093	p<.01
Income	0.000	0.217	0.000	7.735	p<.01
Race x Income	-0.000	-0.089	0.000	0.457	N.S.
(Constant)	2.249				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	8	1384.995	173.124	3.143	p<.001
Residual	228	12558.482	55.081		

Multiple R            0.315

R Square              0.099

Standard Error        0.068

Table 4.19 Cross-Sectional Regression Analysis of Times Unemployed  
Using Key Sociodemographic and Social Resources  
Variables as Predictors.

<u>Regression Coefficients</u>					
Variable	B	Beta	Standard Error Beta	F	Significance
Part-time x Income	0.000	0.033	0.000	0.076	N.S.
HOS	0.057	0.260	0.014	16.077	p<.001
Sex-Female	-0.269	-0.118	0.153	3.094	N.S.
Race-Black	0.375	0.151	0.329	1.301	N.S.
Social Support	0.073	0.043	0.104	0.494	N.S.
Part-time	0.603	0.182	0.438	1.896	N.S.
Age	-0.006	-0.065	0.006	1.076	N.S.
Income	-0.000	-0.027	0.000	0.124	N.S.
Race x Income	-0.000	-0.041	0.000	0.104	N.S.
(Constant)	-1.138				

<u>Analysis of Variance</u>					
	df	Sum of Squares	Mean Square	F	Significance
Regression	9	52.833	5.870	5.334	p<.001
Residual	227	249.834	1.101		

Multiple R            0.418

R Square              0.175

Standard Error        1.049

statistics reflected the same trend: ( $F = 7.780$ ,  $p < .01$ ,  $RSQ \text{ Change} = 3.448\%$ ).

Sex was the only other variable to approach significance in Table 4.19 ( $F = 3.094$ ). Hence, although women were more likely to change jobs than men (see Table 4.18), they also reported less unemployment. This probably related to the fact that women fairly consistently drop out of the employment market during certain periods in their life cycle.

Regression analysis of reasons for leaving former job revealed that those higher in occupational level were less likely to have left their former job, for "negative" (that is, WRLCE loss-associated) reasons than those lower in occupational prestige. A similar association was observed for income, although it was not significant.

Finally, measures for income and occupational mobility were simple trichotomous variables reflecting whether occupation and income went up, remained the same, or went down during the three-year period between interviews. Unfortunately, these measures did not prove to be viable, perhaps because they were too crude to distinguish extreme from moderate change in income and occupation. The following trends were confirmed, however: males were more inclined to rise in income than

females ( $p < .05$ ) and there was greater upward occupational mobility for the young ( $p < .01$ ).

In Chapter 5 the above findings are discussed and evaluated in terms of applications for future research.

## CHAPTER 5

### SUMMARY AND CONCLUSIONS

#### Introduction

This chapter begins with a synopsis of the major findings of this research. Based on these findings, specific and general implications for future research are discussed.

#### Summary of Findings of Hypotheses

Giving tentative support to Hypothesis 1 was a cross-tabular dichotimization of respondents into case and non-case categories. Those experiencing "major work events" were more than twice as likely to fall into case/high scale score groups at  $T_2$  than those experiencing no or only minor events. In a stricter test, multiple regression analysis demonstrated high stability of symptoms and dysfunctions over time, but a comparatively low association between antecedent WRLCE and subsequent HOS and PDS scores, explaining less than 3% of the variance. Hence, Hypothesis 1, though not confirmed, is given qualified support in Chapter 4.

Multiple regression tests of Hypothesis 2 revealed high levels of association between antecedent symptoms, dysfunctions and subsequent WRLCE. Antecedent PDS was a stronger predictor than HOS of subsequent WRLCE, confirming its efficacy as a measure of dysfunction. Age was the most significant predictor of WRLCE in equations including both HOS and PDS, indicating that younger workers experience more work events than older workers. It was also learned that males and single individuals were more likely to experience WRLCE. Hypothesis 2 is therefore confirmed.

Multiple regression equations for Hypothesis 3 showed that social resource variables like occupational level and income are stronger predictors of T<sub>2</sub> HOS and PDS than is WRLCE. The social support measure, however, was not as powerful as had been anticipated when used in combination with other resource variables. Hypothesis 3 is given partial confirmation since the inclusion of income and occupational level resulted in a diminished impact of WRLCE on T<sub>2</sub> symptom and dysfunction scores. In other words, economic resources appeared to lessen the impact of WRLCE on subsequent HOS and PDS scores. Social support resources, on the other hand, made no significant difference in the more inclusive tests of the hypothesis.



The lack of significance of social support in the present study is apparently a function of HOS and PDS insensitivity towards such variables. In contrast, Warheit (1979) found that the presence of a spouse and the availability of friends was significantly related with lower depression scale scores for those experiencing LCE loss-related events.

Finally, it should be noted that Holzer (1977) found parallel patterns of association to those described in the present study when examining the impact of SES and LCE on HOS scale score change over time.

#### Implications for Future Research

##### Specific Issues

This study points to the need for further research on a number of specific questions. For example, why did upper blue-collar workers display such remarkably low levels of symptoms and dysfunctions? Would the same result be found in samples of other worker populations as well? If it could be established that this is a typical pattern, then occupational level would be strengthened as a variable in multiple regression analysis by switching upper blue-collar and lower white-collar positions on the occupational continuum.

Another area meriting further study is the interaction between a wide range of social support measures and work-related stress factors. Do certain kinds of social support somehow protect the individual from WRLCE and other loss-related stressful work experience? A larger sample of workers reporting such events would be a requisite for answering such a question.

In addition, more precise measures of work variables like income and occupational mobility would permit a more careful examination of factors which contribute to successful work behavior. Finally, the effects of unemployment and retirement on mental health are issues that warrant extensive investigation. These issues have only been introduced in the present study.

### General Issues

This dissertation has dealt with a limited aspect of the relationship between work-related stress and mental health. The remainder of this chapter is concerned with outlining general areas of potential future research in this area.

It would greatly benefit future studies of this kind to begin with a large sample of workers. This would permit an adequate sampling of the kinds of WRLCEs affecting individuals on all levels of the occupational continuum. The examination of on-going work-associated

stress factors constitutes an important related dimension of research meriting further study. Such stressors are more difficult to define and measure than are LCEs but could be tapped in general work satisfaction questions and specific "job complaint" kinds of probes.

Since work behavior will remain an important focus of future research, extended and more inclusive lists of WRLCE are necessary. The inclusion of additional carefully tested psychiatric scales for general psychopathology, depression, cognitive impairment and other measures of dysfunction would also enhance future research. However, the emphasis should remain on screening devices for psychoneurosis like HOS and screening devices for dysfunction like PDS since they relate more directly to the kinds of mental health problems most commonly experienced by workers.

In addition, future studies focusing on work, stress and mental health will require the employment of some kind of longitudinal design. Ideally, respondents should be interviewed at two or three year intervals for as many follow-up surveys as research funding permits. This will permit a better understanding of work-related developments like downward occupational mobility and early or unscheduled retirement.

Finally, studies incorporating innovations such as the ones proposed above will remain incomplete if they fail to consider the factor of status inconsistency. In a previously cited landmark study, Dunham et al. (1966) provided evidence that individuals who were high in education but low in income and occupational level were likely to experience greater dysfunction than individuals experiencing other kinds of status inconsistency. Consequently, future studies will benefit from employing this variable in examining the impact of work-related stress on mental health.

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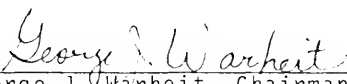
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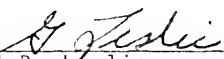
## BIOGRAPHICAL SKETCH

Dennis E. Ghyst was born on April 28, 1944, in Madison, South Dakota. He graduated from Inglewood High School in Inglewood, California, in June, 1962. In 1966 he received the degree of Bachelor of Arts "cum laude" with a major in International Relations from the University of Southern California. In March, 1968, he received his Master of Arts in Political Science-International Relations from the University of California at Los Angeles. From April, 1968 until June, 1970 he taught university English as a Peace Corps Volunteer in Iran. He began graduate study in the Department of Sociology at the University of Florida in September, 1970. After his admission to candidacy for the degree of Doctor of Philosophy in sociology in May, 1974, he taught sociology and political science courses for the University of Maryland in Western Europe through January, 1976. Since his return to the University of Florida he has been teaching courses for the Department of Social Sciences and working on this dissertation.

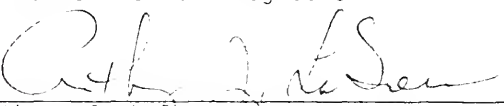
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George J. Warheit, Chairman  
Professor of Sociology

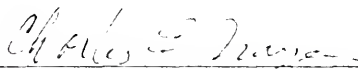
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Gerald R. Leslie  
Professor of Sociology


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Anthony J. LaGreca  
Associate Professor of Sociology

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Charles E. Frazier  
Associate Professor of Sociology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
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This dissertation was submitted to the Graduate Faculty of the Department of Sociology in the College of Liberal Arts and Sciences and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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